

INDEX OF SUBJECTS.

TRANSACTIONS, PROCEEDINGS, AND ABSTRACTS.

1906.

(Marked T., P., and A., i and A., ii respectively.)

A.

Abietene, Abietic acid, and Abietin from American colophony (LEVY), A., i, 870.

Absorption of carbohydrates, rôle of the pancreas in the (LOMBROSO), A., ii, 292.

of gases. See under Solubility.
of proteids from the intestine (CATH-CART and LEATHES), A., ii, 181.

intestinal. See Intestinal.

Absorption coefficient of gases. See under Solubility.

Absorption spectrum. See under Photo-chemistry.

Absorption tube. See Tube.

Accumulator. See under Electro-chemistry.

Acet-. See also Aceto-, Acetyl-, and under the parent Substance.

Acetal, dichlorothio- (ODDO and MAMELI), A., i, 135, 620.

Acetaldehyde, effect of electrical discharges of high frequency on the vapour of (JACKSON and NORTHELL-LAURIE), T., 1190; P., 156.
compounds of, with halogen acids (MCINTOSH), A., i, 481.

Acetaldehydphenylhydrazone, isomeric, and their benzoyl derivative (LOCKEMANN and LIESCHE), A., i, 111.

Acetal-esters, synthesis of (TSCHITSCHI-BABIN), A., i, 397.

Acetamide, preparation of (FRANÇOIS), A., i, 340.

mercury derivative, diazotisation of (MORGAN and WOOTTON), P., 23.

Acetamide, bromonitro-, and nitro- and its alkyl derivatives and oximes (RATZ), A., i, 238.

chloro-, N-formyl derivative (EINHORN and MAUERMAYER), A., i, 250.

Acetanilide and its homologues, action of ethyl oxalate on (RUHEMANN), T., 1236; P., 197.

nitrated (HOLLEMAN and SLUITER), A., i, 649.

Acetanilide, 2:3-dibromo- (KÖRNER and CONTARDI), A., i, 641.

ciano-, chloro-derivatives of (PICCININI and DELPIANO), A., i, 944.

o- and *p*-fluoro- (HOLLEMAN), A., i, 941.

p-iodo-, action of chlorine on, and *p*-iodoso- (WERNER), T., 1633.

Acetic acid and its ethyl ester, compounds of, with halogen acids (MCINTOSH), A., i, 481.

hydrates of (COLLES), T., 1252; P., 207.

Acetic acid, salts, injurious action of, on plants (Asō), A., ii, 887.

gold and alkaline-earth metal or lead double salts (WEIGAND), A., i, 136.

lead salt, reactions between lead chloride and, in acetic acid and water solutions (WHITE), A., i, 229.

mercuric salt, action of aqueous solutions of, on olefinic compounds (BALBIANO, PAOLINI, NARDACCI, TONAZZI, LUZZI, BERNARDINI, CIRELLI, MAMMOLA, and VESPIGNANI), A., i, 186.

uranyl salt, action of light on (BACH), A., ii, 321.

- Acetic acid, amino-**. See Glycine.
 bromo- and chloro-, and their esters and sodium salts, reaction of, with silver nitrate (v. EULER), A., i, 789.
dibromonitro-, ethyl ester (SCHOLL and NYBERG), A., i, 563.
chloro-, velocity of reaction of excess of water on (BEVAN), A., ii, 425.
 condensation of, with cyclohexanone and its three methyl homologues (DARZENS and LEFÉBURE), A., i, 430.
 action of xanthates on derivatives of (FRERICHS and RENTSCHLER), A., i, 408.
 ethyl ester, application of Grignard's reaction to (SÜSSKIND), A., i, 133.
mono- and tri-chloro-, hydrates of (COLLES), T., 1252; P., 207.
trichloro-, pyrogenic behaviour of (JOIST and LÖB), A., i, 130.
 kinetics of the fission of carbon dioxide from, in aniline solution (GOLDSCHMIDT and BRÄUER), A., i, 159.
 compounds of, with dimethylpyrone, electrical conductivity of solutions of, in ethyl bromide, chloroform, and benzene (PLOTNIKOFF), A., ii, 144, 419.
 cyano-, action of carbamide on compounds of (FRERICHS and HARTWIG), A., i, 74, 163.
 action of, on crotonaldehyde (HAERDTL), A., i, 62.
 condensation of, with ketones (KNOEVENAGEL), A., i, 482.
 sodium derivative, action of ethylene dibromide on (BARTHÉ), A., i, 175.
 ethyl ester, sodium derivative, reaction of, with cyanohydrins of aldehydes and ketones (HIGSON and THORPE), T., 1456; P., 242.
 difluorochloro-, and its salts (SWARTS), A., i, 478.
Acetic acid factory, bacteriological investigations in the (HENNEBERG), A., ii, 475.
Acetic acid fermentation. See under Fermentation.
Acetic anhydride, stability of aqueous and alcoholic solutions of (A. and L. LUMIÈRE and BARBIER), A., i, 791.
Acetic arsenious anhydride (PICTET and BON), A., i, 3.
Aceto-. See also Acet-, Acetyl-, and under the parent Substance.
Acetoacetic acid, action of iodine on (BOND), A., ii, 588.
 detection of, in urine (MAYER), A., ii, 501; (BOND), A., ii, 588; (RIEGLER), A., ii, 710; (LINDEMANN), A., ii, 813.
Acetoacetic acid, ethyl ester, condensation of, with phenylcarbamide (KIESSLING), A., i, 946.
 condensation of, with phenylmethyl-pyrazolone (STOLLE), A., i, 48.
 synthesis of derivatives of (JOVITSCHITSCH), A., i, 230.
Acetoacetic acid, thio-, ethyl ester and its tautomeride (KNORR and HICKS), A., i, 795.
Acetone, constitution of, and action of sodium and magnesium methyl iodide on (TAYLOR), T., 1258; P., 173.
 acid condensation of (KNOEVENAGEL and BEER), A., i, 964.
 alkaline condensation of (KNOEVENAGEL and BLACH), A., i, 964.
 action of, on alkali sulphites (ROTHMUND), A., i, 233.
 condensation of, with tiglic aldehyde (DAUTZWITZ), A., i, 803.
 microbe which produces (BRÉAUDAT), A., ii, 568.
 formation of, in the liver (EMBDEN and KALBERLAH; EMBDEN, SALOMON, and SCHMIDT), A., ii, 375.
 formation of, in the organism (SATTA), A., ii, 105.
 estimation of (AULD), A., ii, 256; (JOLLES), A., ii, 401.
 sources of error in the estimation of, in urine (BORCHARDT), A., ii, 312.
Acetonedicarboxylic acid, esters, condensation of, with benzaldehyde in presence of ammonia (PETRENKO-KRITSCHENKO and ZONEFF), A., i, 452.
 ethyl ester, preparation of (ORMEROD), P., 205.
Acetophenylhydrazone picrate (CIUSA and AGOSTINELLI), A., i, 892.
Acetonerhamnoside, methylation of (PURDIE and YOUNG), T., 1200; P., 201.
Acetonitrile, orthobaric densities of, to the critical point (TER-GAZARIAN), A., ii, 423.
 diaminino-, di-*p*-iodobenzoyl derivative of (JOHNSON and MEADE), A., i, 852.
Acetonuria following chloroform and ether anaesthesia (BALDWIN), A., ii, 108.
Acetylonylacetic acid. See Lævulinic acid.
Acetonyloxalic acid, ethyl ester, action of aldehydes on (RUHEMANN), T., 1239; P., 198.
Acetophenone, action of formaldehyde and ammonium chloride on (SCHÄFER and TOLLENS), A., i, 574.
p-iodo-, action of chlorine on, and *p*-iodoso- (WERNER), T., 1632.

- Acetophenoneoxalic acid.** See Benzoyl-pyruvic acid.
- Acetoxime,** behaviour of, towards sodium hypochlorite (PONZIO), A., i, 482.
- Acetoxy.** See also under the parent Substance.
- o-Acetoxybenzoic acid.** See Acetylsalicylic acid.
- 1-Acetoxyisatin** (HELLER), A., i, 586.
- 4-Acetoxy-3-methoxyarbastyril,** o-nitro-. See α -Phenyl-4-acetoxy-3-methoxycinnamic anhydride, o-nitro-2-amino-.
- 9-Acetoxy-9-phenyl-10-methylenedi-hydroanthracene** (GUYOT and STAHLING), A., i, 18.
- Acetyl.** See also Acet-, Aceto-, and under the parent Substance.
- Acetyl chloride,** pyrogenic behaviour of (JOIST and LÖB), A., i, 130.
- as a reagent for pinacolyl alcohols (HENRY), A., i, 329; (DELACRE), A., i, 551.
- Acetyl-alkyl- and -aryl-thiomalonamic acids,** imino-, ethyl esters (BEHREND and HENNICKE), A., i, 312.
- Acetylamino-** See also under the parent Substance.
- Acetylaminoacetic acid.** See Acetyl-glycine.
- Acetylanthranil,** 5-bromo- (BOGERT and HAND), A., i, 176.
- 5-nitro- (BOGERT and COOK), A., i, 988.
- p-Acetylbenzoic acid,** ethyl ester (BEREND and HERMS), A., i, 854.
- 3-Acetyl-5-benzylidene-2-methyl-4-keto-dihydrofuran.** See 4-Keto-3-acetyl-5-benzylidene-2-methylidihydrofuran.
- Acetylene,** synthesis of (PRING and HUTTON), T., 1591; P., 261.
- purification of, by means of calcium hypochlorite (DITZ), A., i, 617.
- behaviour of, with electrical discharges of high frequency (JACKSON and NORTHALL-LAURIE), P., 155.
- thermal constants of (MIXTER), A., ii, 598.
- combustion of, in oxygen (MAURICE-BEAUPRÉ), A., i, 129.
- action of, on iodine pentoxyde (JAUBERT; GAUTIER), A., ii, 125; (LÉVY and PÉCOUL), A., ii, 197.
- reactions of, with acidified solutions of mercury and silver salts (NIEUWLAND and MAGUIRE), A., i, 721.
- presence of a gaseous hydride of calcium in technical (HOFFMEISTER), A., ii, 162.
- production of lampblack from (FRANK), A., ii, 21.
- Acetylenedicarboxylic acid,** reactions of (LOSSEN, BERGAU, and TREIBICH), A., i, 798.
- Acetylenic compounds,** molecular refraction and dispersion of (MOUREU), A., ii, 1.
- Acetylethylmalonamic acid,** imino-, ethyl ester (BEHREND and HENNICKE), A., i, 313.
- Acetylglycine** (*acetylaminooacetic acid*), chloro-, hydroxy-, and diiodo-, ethyl esters (CURTIUS and DARAPSKY), A., i, 403.
- Acetylglycolylaminoacetic acid,** ethyl ester (CURTIUS and DARAPSKY), A., i, 403.
- Acetylglycolylglycylglycine,** ethyl ester (CURTIUS and THOMPSON), A., i, 403.
- Acetylglycylglycylglycine,** hydroxy- and diiodo-, ethyl esters (CURTIUS and THOMPSON), A., i, 403.
- Acetyl group,** replacement of the, by the methoxyl group, by the action of diazomethane (HERZIG and TICHTSCHEK), A., i, 173.
- replacement of the, by the methyl group, by means of diazomethane (HERZIG and TICHTSCHEK), A., i, 431.
- Acetyl groups,** direct estimation of (MEYER and HARTMANN), A., ii, 58.
- ϵ -Acetylhexoic acid** and its semicarbazone (WALLACH), A., i, 371.
- Acetyl keto-** See Ketoacetyl.
- Acetyl methylcarbinol,** production of (HARDEN; HARDEN and WALPOLE), A., ii, 380.
- Acetyl-2-methylindole,** amino- (FISCHER and KAAS), A., i, 455.
- Acetylloxalylphenylmethylpropene** (5-hydroxy-2-acetyl-4-phenyl-3-methyl-1-ketocyclopentadiene) and its oxime, phenylhydrazone, and semicarbazone (RUHEMANN), T., 683; P., 89.
- Acetylphenylacetonitriles,** m- and p- (KUNCKELL and FLOS), A., i, 848.
- α -Acetyl- γ -phenyl- $\Delta\beta$ -butenoic acid,** γ -hydroxy-, lactone of, and its benzoyl derivative and its phenylhydrazone and semicarbazone (BORSCHE and FELS), A., i, 509.
- N-Acetyl-2,2-phenylhydroxy-1:3-benzoxazone** (McCONNAN and TITHERLEY), T., 1337; P., 239.
- 2-Acetyl-4-phenyl-3-methyl-1-ketocyclopentadiene,** 5-hydroxy-. See Acetyl-oxalylphenylmethylpropene.
- β -Acetylpropionic acid.** See Lævulic acid.

- γ -Acetyl- α -isopropyl- n -butyric acid** (SEMMLER and MCKENZIE), A., i, 373.
- Acetylsalicylic acid**, 3:5-dichloro- (JOWETT and PYMAN), P., 317.
- p -Acetyltoluene**, *o*-chloro, and its oxime and semicarbazone (WALLACH and LAUTSCH), A., i, 523.
- Acid**, $C_4H_8O_2$, from the hydrocarbon, $C_{12}H_{22}$ (GOLDBERGER and TANDLER), A., i, 58.
- $C_4H_4O_3N_2$ esters, and their salts and amine compounds, from the action of carbamide on compounds of cyanoacetic acid (FRERICHS and HARTWIG), A., i, 74.
- $C_5H_4O_3N_2$, and its salts, from the action of bromine on malylureide (GABRIEL), A., i, 636.
- $C_6H_8O_5N_2$, from the oxidation of nitroso-piperidine in acetone solution (VORLÄNDER and WALLIS), A., i, 764.
- $C_9H_{14}O_2$, and its salts, from aminolauronic anhydride (NOYES and TAVEAU), A., i, 397.
- $C_9H_{14}O_3$, from the oxidation of pinylamine (WALLACH and ENGELBRECHT), A., i, 685.
- $C_9H_{14}O_4$, from the oxidation of pinocarveol (WALLACH and JÄGER), A., i, 683.
- $C_9H_{16}O_3$, and its lactone and methyl ether, from aminolauronic anhydride (NOYES and TAVEAU), A., i, 397.
- $C_{10}H_{14}O_2$, from the substance, $C_{10}H_{14}O$, from β -terpineol (WALLACH and SCHMITZ), A., i, 372.
- $C_{10}H_{14}O_3$, $C_{10}H_{16}O_4$, and $C_{10}H_{18}O_3$, from diisophenol (SEMMLER and MCKENZIE), A., i, 373.
- $C_{10}H_{16}O_3$, and $C_{10}H_{16}O_4$, from the oxidation of pinocamphone (WALLACH and ENGELBRECHT), A., i, 684.
- $C_{10}H_{16}O_6$, from the hydrolysis of ethyl 1:1:3-trimethyl-4-cyclopentanone-2:3-dicarboxylate (PERKIN and THORPE), T., 787.
- $C_{12}H_{14}O_3$, from the action of zinc on a mixture of cinnamaldehyde and ethyl α -bromopropionate (BAIDAKOWSKY), A., i, 178.
- $C_{12}H_{12}O_3N_4S$, from the action of sulfur dioxide on a diazobenzene salt (TRÖGER, HILLE, and VASTERLING), A., i, 120; (TRÖGER and FRANKE), A., i, 993; TRÖGER, BERLIN, and FRANKE), A., i, 994.
- $C_{13}H_{14}O_6$, from ethyl phenylisocrotonate and ethyl sodiomalonate (VORLÄNDER and STRUNCK), A., i, 366.
- Acid**, $C_{14}H_{16}O_6$, from the acid, $C_{15}H_{16}O_8$ (VORLÄNDER and STRUNCK), A., i, 367.
- $C_{14}H_{16}O_3N_2S$, from the action of sulphur dioxide on diazo-*m*-toluene (TRÖGER, HILLE, and VASTERLING), A., i, 120; (TRÖGER and SCHAUB; TRÖGER, WARNECKE, and SCHAUB), A., i, 993.
- $C_{15}H_{16}O_8$, from ethyl and β -hydro-piperate and ethyl sodiomalonate (VORLÄNDER and STRUNCK), A., i, 367.
- $C_{16}H_{30}O_2$, and its methyl ester, from cod liver oil (BULL), A., i, 925.
- $C_{17}H_{14}O_5$, from the lactone of 8-hydroxy-3:4-dimethoxyphenanthrene-9-carboxylic acid (PSCHORR and POPOVICI), A., i, 851.
- $C_{17}H_{18}O_2$, from the action of potassium hydroxide on the substance, $C_{24}H_{22}O$ (BAUER and BREIT), A., i, 517.
- $C_{17}H_{22}O_4$, from the reduction of δ -cetyl- $\alpha\alpha$ -dimethylfulgenic acid and its isomeride (STOBBE and LEUNER), A., i, 23.
- $C_{18}H_{10}O_6$, from naphthacenediquinone (VOSWINCKEL), A., i, 99.
- $C_{18}H_{32}O_6$, from oleic acid (MOLINARI and SONCINI), A., i, 792.
- $C_{21}H_{17}O_3$, from cyanoacetic acid and *p*-methoxyphenyl- α -naphthylcarbinol (Fosse), A., i, 976.
- $C_{26}H_{42}O_6$, from the oxidation of the keto-acid, $C_{26}H_{42}O_3$, from cholestenone (WINDAUS), A., i, 580.
- $C_{27}H_{44}O_4$, from cholesterol (WINDAUS), A., i, 580.
- $C_{27}H_{44}O_4$, from the oxidation of cholestenone (WINDAUS), A., i, 579.
- $C_{30}H_{24}O_3N_6$, and its salts and esters, from the ethyl ester of the acid, $C_4H_4O_3N_2$, and aniline (FRERICHS and HARTWIG), A., i, 163.
- $C_{30}H_{21}O_3N_6Br_3$, and $C_{30}H_{21}O_3N_6Cl_3$, from the ethyl ester of the acid, $C_4H_4O_3N_2$, and *m*-bromo- and *p*-m-chloro-anilines (FRERICHS and HARTWIG), A., i, 164.
- $C_{33}H_{30}O_3N_6$ (threic), from the ethyl ester of the acid, $C_4H_4O_3N_2$, and *m*- and *p*-toluidines and methylaniline (FRERICHS and HARTWIG), A., i, 164.
- Acid amides and imides.** See Amides and Imides.
- Acid anhydrides.** See Anhydrides.
- Acid chlorides**, action of, on mixtures of amines (DAINS), A., i, 804.
- reaction between, and potassium ethylxanthate (WILLCOX), A., i, 726.

Acid chlorides, action of, on thioureas (DIXON and HAWTHORNE), P., 322.
Acid intoxication (SZILI), A., ii, 878.
Acid salts. See Salts, acid.
Acidimetry by measurement of hydrogen (REBENSTORFF), A., ii, 893.
Acids, alcohols, and aldehydes, preparation of (CHEMISCHE FÄRBIK FLÖRSHEIM, H. NOERDLINGER), A., i, 628.
reciprocal displacement of, in heterogeneous systems (JOSEPH), T., 823; P., 82.
reactivity of certain, in alcoholic solutions (PETERSEN), A., ii, 657.
synthetic action of, contrasted with that of enzymes (ARMSTRONG), A., i, 127.
relative strengths of (BLACKMAN), A., ii, 529.
estimation of, in fruit juices, both fermented and unfermented (MESTREZAT), A., ii, 635.
estimation of, in waste gases (HENZ), A., ii, 122.
Acids, monobasic unsaturated fatty, affinity constants of (FICHTER and MUELLER), A., i, 622.
di-basic, progressive dissociation of (WEGSCHEIDER), A., ii, 73.
action of, on *o*-, *m*-, and *p*-diamines (MEYER, JAEGER, v. LUTZAU, and MAIER), A., i, 765.
polybasic, synthesis of (REFORMATSKY), A., i, 136.
containing an ethylenic linking, action of nascent hypoiodous acid on (BOUGAULT), A., i, 848.
fatty, critical temperature and value of $\frac{ML}{\Theta}$ of some (BROWN), T., 313; P., 39.
of cephalin (COUSIN), A., i, 725.
halogenated, reactions of (LOSSEN, BERGAU, DUECK, LEOPOLD, MENDTHAL, NIEHRENHEIM, SCHÖRK, and TREIBICH), A., i, 796.
action of alkali hydroxides on (LOSSEN, DORNO, EICHLOFF, GERLACH, KOWSKI, MORSCHÖCK, and SMELKUS), A., i, 59.
optically active, origin of, in nature (NEUBERG), A., i, 923.
solid, preparation of (DREYmann), A., i, 622.
mineral, modification of the methyl-violet process in the estimation of free (CORSINI), A., ii, 704.
detection of, in wines (BILLON), A., ii, 400.

Acids, normal, methods for preparing (MASCHHAUPT), A., ii, 797.
organic, solubility and specific rotatory power of, in pyridine and other solvents (HOLTY), A., ii, 61.
conductivity measurements with (SÜSS), A., i, 86.
partition of, between two solvents (HERZ and LEWY), A., ii, 76.
containing nitrogen and sulphur, present in normal human urine (BONDZYŃSKI, DOMBROWSKI, and PANEK), A., i, 122.
reversible reactions among derivatives of (BIEHRINGER and BORSUM), A., i, 953.
alkali salts, preparation of, from the corresponding amides and nitriles (DEUTSCHE GOLD- & SILBER-SCHEIDE-ANSTALT VORM. RÖSSLER), A., i, 845.
electrolysis of (PETERSEN), A., i, 331.
of the paraffin series, molecular arrangement in mixtures of, with water (HOLMES), T., 1778; P., 272.
of the propionic series, decomposition of, by physiological methods (LUZZATTO), A., ii, 111.
unsaturated alicyclic, influence of the position of the ethylene linking on the electro-affinity and characters of (ABATI), A., i, 958.
 $\alpha\beta$ -cyclic, stereoisomerism in the group of (BLAISE and BAGARD), A., i, 479.
volatile, estimation of, in wines (HUBERT), A., ii, 635; (SAUNIER), A., ii, 812.
weak, dissociation constants of (BAUER), A., ii, 649.
See also Aldehydo-acids, Amino-acids, Aminocarboxylic acids, Aminosulphonic acids, Carboxylic acids, Diamino-acids, Dicarboxylic acids, Dipeptides, Dye-acids, Hydroxy-acids, Hydroxy-amino-acids, Keto-carboxylic acids, Ketonic acids, Peptides, Peroxide-acids, Polypeptides, Pseudo-acids, Sulpho-acids, and Thio-acids.
Acmite from Montreal (HARRINGTON), A., ii, 866.
Aconine and **Aconitine** from *Aconitum Napellus* (SCHULZE), A., i, 599.
Aconitic acid and its methyl derivatives, new mode of formation of, and its constitution (ROGERSON and THORPE), T., 631; P., 87, 146; (RUHEMANN), P., 137.
Aconitine, new reaction of (MONTI), A., ii, 908.

- Acraldehyde**, reduction of (VAN ROMBURGH and VAN DORSSSEN), A., i, 141.
- Acridine**, preparation of, from acridone (DECKER and DUNANT), A., i, 901. derivatives, colour and fluorescence of (DUNSTAN and HEWITT), T., 486. methiodide, constitution of the cyanide and hydroxide from (TINKLER), T., 856; P., 135.
- Acridine**, 4:4'-diamino- (DUVAL), A., i, 315.
- Acridines**, hydroxy- (ULLMANN and FITZENKAM), A., i, 45.
- Acridine series**, studies in the (DUNSTAN and HEWITT), T., 482, 1472; P., 73, 243. syntheses in the (BAEZNER, GUEORGUIEFF, and GARDIOL), A., i, 699, 901; (BAEZNER and GARDIOL), A., i, 887.
- 5-Acrydyl-β-propionic acid** and its esters and derivatives, and transformations of the quaternary ammonium hydroxides of (SCHENCK), A., i, 698.
- Acrocomia sclerocarpa*, fat of the kernels of (SACK), A., ii, 386.
- Acrylonitiles**, β-amino-, synthesis of β-substituted derivatives of (MOUREU and LAZENNEC), A., i, 956.
- Actinium**, some properties of (DEBIERNE), A., ii, 414. mass and velocity of the α-particles from (RUTHERFORD), A., ii, 719. ionisation ranges of α-rays of (HAHN), A., ii, 718. origin of β-rays of (LEVIN), A., ii, 718. See also Radioactinium.
- Acyl chlorides**. See Acid chlorides. thiocyanates, constitution and properties of (HAWTHORNE), T., 556; P., 86.
- Acyloins**, fatty, hydrogenation of (BOUVEAULT and LOCQUIN), A., i, 783. oxidation of (BOUVEAULT and LOCQUIN), A., i, 803. of the type R·CO·CH(OH)·R, preparation of (BOUVEAULT and LOCQUIN), A., i, 782.
- Additive compounds**, limit of stability of, in the solid state, and the divergence of the same from Kopp and Neumann's law (KREMMANN and v. HOFMANN), A., ii, 267. processes (VORLÄNDER, GROEBEL, KÖNIG, KöTHNER, MAY, SPONNAGEL, STAUDINGER, STRUNCK, and WEISSEIMER), A., i, 362. reactions, mechanism of (VORLÄNDER), A., i, 729.
- Adipanilide** (BÖDTKER), A., i, 827.
- Adipic acid**, preparation of (ROSENLEW), A., i, 558. electrolytic decomposition of (VAN ZETTI), A., i, 624.
- Adipic dialdehyde** and its derivatives (WOHL and SCHWEITZER), A., i, 233.
- Address**, congratulatory, to Aberdeen University, P., 249. to Sir William Henry Perkin, P., 247. presidential (MELDOLA), T., 745; P., 98. See also Letter and Telegram.
- Adrenaline (epinephrine)**, formation of, in the organism (HALLE), A., ii, 562. constitution of (FRIEDMANN), A., i, 529. molecular weight of (BARGER and EWINS), P., 38. physiological action of (MEYER), A., ii, 777. subcutaneous injection of (ELLIOTT and DURHAM), A., ii, 877. action of, on muscular glycogen (GATIN-GRUZEWSKA), A., ii, 566. synthesis of substances allied to, and their physiological activity (DAKIN), A., i, 56. hydrate (ABEL and TAVEAU), A., i, 56.
- Adrenaline glycosuria**. See under Diabetes.
- Adrenalone** tribenzenesulphonate and its p-nitrophenylhydrazone (FRIEDMANN), A., i, 529.
- Adsorption** of dissolved substances (EVANS), A., ii, 429. of water vapour and of certain salts in aqueous solution by quartz (BRIGGS), A., ii, 13.
- Adsorption phenomena**, with special reference to the action of electrolytes and the ash-constituents of proteids (BAYLISS), A., ii, 344.
- Aegiceras majus*, bark and fruits of (WEISS), A., ii, 571.
- Egirite** from Montreal (HARRINGTON), A., ii, 866.
- Aethusa Cynapium*, examination of (POWER and TUTIN), A., ii, 192.
- AFFINITY, CHEMICAL**—
- Chemical affinity**, studies in (BRÖNSTED), A., ii, 339, 834. a problem of (MEYERHOFFER), A., ii, 12. colorimetric measurement of (SALM), A., ii, 218.
 - Affinity constants** of monobasic unsaturated fatty acids (FICHTER and MÜLLER), A., i, 622. of amino-acids (WEGSCHEIDER), A., ii, 77.

AFFINITY, CHEMICAL:—

- Affinity constants** of methylated amino-acids (WALKER), A., ii, 735.
 of aminocarboxylic and amino-sulphonic acids as determined by the aid of methyl-orange (VELEY), P., 313.
 of some hydrolytic products from albumin (KANITZ), A., ii, 603.
 of cyclic bases (DEDICHEN), A., i, 539.
 of amphoteric electrolytes (JOHNSTON), A., ii, 733; (CUMMING), A., ii, 734; (WALKER), A., ii, 735.
 of xanthine and its methyl derivatives (WOOD), T., 1839; P., 271.
Association factors of certain organic compounds (CARRARA and FERRARI), A., ii, 599.
Mass law, Guldberg and Waage's, extension of the theoretical applicability of (ROBERTSON), A., ii, 833.
Chemical action, an apparent case of, at a distance (LIESEGANG), A., ii, 218.
Chemical actions, method of following the course of (BEVAN), A., ii, 425.
Chemical activity, relation of, to electrolytic conductivity (SAMMIS), A., ii, 835.
 electrolytic conduction, and specific inductive capacity of certain liquids, relation between (MATHEWS), A., ii, 3, 327.
Chemical changes, induced by ultraviolet light (RAMSAY and SPENCER), A., ii, 715; (LE BON), A., ii, 825.
Chemical dynamics of alcoholic fermentation by yeast (SLATOR), T., 128.
Chemical dynamics and statics of reversible and irreversible systems under the influence of light (WILDERMAN), A., ii, 325.
Chemical equilibria, researches on (BRINER), A., ii, 657.
 calculation of, from thermal measurement (NERNST), A., ii, 727.
 gaseous, new method of investigating, at high temperatures (LÖWENSTEIN), A., ii, 272.
 heterogeneous (BRINER), A., ii, 529.
 under variable pressures (BRINER), A., ii, 424.
 hydrolytic, thermodynamics of (DOLEZALEK and FINCKH), A., ii, 597.

AFFINITY, CHEMICAL:—

- Chemical equilibria** of several bases exposed simultaneously to the action of phosphoric acid (BERTHELOT), A., ii, 657.
 of an associating amphoteric electrolyte in presence of any number of non-amphoteric electrolytes, condition of (ROBERTSON), A., ii, 828.
 of binary solutions, influence of substitution in the components on the (KREMAN and RODINIS), A., ii, 268.
 of binary solutions of phenols and amines (KREMAN), A., ii, 266.
 in the system, ammonium sulphate, lithium sulphate, and water (SCHREINEMAKERS and COCHERET), A., ii, 424.
 in the system, bismuth and sulphur (ATEN), A., ii, 11.
 the system, bromine and iodine (MEERUM TERWOGT), A., ii, 15.
 the system—perchloric acid and water (VAN WIJK), A., ii, 79.
 $6\text{H}^+ + 5\text{I}^- + \text{IO}_3^- \rightleftharpoons 3\text{I}_2 + 3\text{H}_2\text{O}$ and
 $6\text{H}^+ + 5\text{Br}^- + \text{BrO}_3^- \rightleftharpoons 3\text{Br}_2 + 3\text{H}_2\text{O}$ (SAMMET), A., ii, 153.
 in the system, water, lithium sulphate, and aluminium sulphate (SCHREINEMAKERS and DE WAAL), A., ii, 855.
 between potassium chromate and barium carbonate and sulphate (SCHOLTZ and ABEGG), A., ii, 602.
 between silver amalgams and a solution of silver and mercury nitrates (REINDERS), A., ii, 219.
 in the Deacon process (LEWIS), A., ii, 843.
 in silver chloride solutions (WELLS), A., ii, 340.
Chemical kinetics (MIELI), A., ii, 602.
 in concentrated sulphuric acid (BREDIG and LICHTY), A., ii, 602.
 of extreme states of aggregation (BOSE), A., ii, 7.
 of photochemical reactions (GOLDBERG), A., ii, 513, 514; (LUTHER and GOLDBERG), A., ii, 641.
 of successive reactions (KAUFLER), A., ii, 424.
 of the splitting-off of the acyl groups of esters of polyhydric alcohols by hydroxyl ions in aqueous homogeneous systems (KREMAN), A., ii, 731.
 general method of calculation in ; the method of areas; a method of approximate effective averages (DE LURY), A., ii, 729.

AFFINITY, CHEMICAL:—

Chemical reaction, supposed alteration in the total weight of substances taking part in a (LANDOLT), A., ii, 528.

Reactions, intermediate, a specially simple case of (ABEL), A., ii, 731. reversible, among derivatives of organic acids (BIEHRINGER and BORSUM), A., i, 953.

Catalysis and electromotive force (BRINGHENTI), A., ii, 426. and enzyme action (NEILSON), A., i, 125. by ferments (SETER), A., ii, 220.

Catalytic actions of platinum black (LOEW and ASÖ), A., ii, 862. agents, oxidising (SABATIER and MAILHE), A., i, 549; (MATIGNON and TRANNOY), A., ii, 427. effect of hydrogen and hydroxyl ions, cause of the, on hydrolytic reactions (ROHLAND), A., ii, 733. racemisation, researches on (WINTHER), A., ii, 736, 835.

Reciprocal displacement of acids in heterogeneous systems (JOSEPH), T., 823; P., 82.

Dissociation, progressive, of dibasic acids (WEGSCHEIDER), A., ii, 73. of electrolytes (HENSGEN), A., ii, 73. of fused compounds (KREMANN), A., ii, 332.

of matter under the influence of light and heat (RAMSAY and SPENCER), A., ii, 715; (LE BON), A., ii, 825.

Dissociation constants of weak acids (BAUER), A., ii, 649.

Distribution, law of, in the case in which one of the phases possesses mechanical rigidity; adsorption and occlusion (TRavers), A., ii, 730.

Energy, free, of some halogen and oxygen compounds, computed from the results of potential measurements (THOMPSON), A., ii, 517.

Enzyme action (BARENDRICHT), A., i, 328.

studies on (H. E. ARMSTRONG), A., i, 126; (E. F. ARMSTRONG), A., i, 127, 128.

and catalysis (NEILSON), A., i, 125. law of, and heterogeneous catalysis (HENRI), A., ii, 13.

reversible (POTTEVIN), A., i, 917.

Hydrolysis, theory of (MARCUSSON), A., i, 924.

new method for the measurement of, in aqueous solution based on a consideration of the motion of ions (DENISON and STEELE), T., 999, 1386; P., 162.

AFFINITY, CHEMICAL:—

Hydrolysis of ammonium salts (NAUMANN and RÜCKER), A., ii, 851. by water (HILL), T., 1273; P., 204.

in presence of iodides and iodates (MOODY), A., ii, 851.

of dichromates and polymolybdates (SAND), A., ii, 528.

of esters of polyhydric alcohols (ABEL), A., ii, 731.

estimation of, by distillation (NAUMANN and MÜLLER), A., ii, 732.

earlier methods for the estimation of (NAUMANN and RÜCKER), A., ii, 732.

Hydrolytic reactions, cause of the catalytic effect of hydrogen and hydroxyl ions on (ROHLAND), A., ii, 733.

Partition, examples of the law of (HERZ and LEWY), A., ii, 530. of some organic acids between two solvents (HERZ and LEWY), A., ii, 76.

Partition phenomena, influence of strong electrolytes on (DAWSON), A., ii, 730.

Partition, principle of ("Verteilungs-princip") (MICHAEL), A., i, 550. application of (MICHAEL and TURNER), A., i, 550; (MICHAEL and LEIGHTON), A., i, 551, 781; (MICHAEL and HARTMAN), A., i, 551; (MICHAEL), A., i, 559, 781.

Reaction velocities at low temperatures (PLOTNIKOFF), A., ii, 12.

Velocity of chemical change in the polymethylene series (MENSCHUTKIN), T., 1532; P., 203.

determination of, by measurement of gases evolved (LAMPLOUGH), P., 280.

Velocity of formation of oximes (PETRENKO-KRITSCHENKO and KANTSCHEFF), A., ii, 341.

Velocity of hydrolysis, method of determining (WALKER), A., ii, 732.

Velocity of the reaction between arsenious acid and iodine in acid solution; rate of the reverse reaction; and the equilibrium between them (ROEBUCK), A., ii, 76.

Agglutination and allied reactions from the physical standpoint (BUXTON and SHAFFER), A., ii, 839; (BUXTON and TEAGUE; TEAGUE and BUXTON), A., ii, 840.

production of, by the action of complement (MUIR and BROWNING), A., ii, 98.

- Agglutination** of Bacteria (DREYER and JEX-BLAKE), A., ii, 98.
- Aggregation**, continuity of the states of (LEHMANN), A., ii, 431.
kinetics of extreme states of (BOSE), A., ii, 7.
- "**Agricultural phosphate**," manurial experiments with (BACHMANN), A., ii, 702.
- Agrostemma Githago*, sapotoxin and sapogenin from (BRANDL, MAYR, and VIERLING), A., i, 526.
- Air.** See Atmospheric air.
- Alanine**, amount of, in casein (SKRAUP), A., i, 123.
- d*-**Alanine**, preparation of, from silk, and its anhydride (FISCHER), A., i, 145.
- i*-**Alanine**, administration of, to a normal dog (SCHITTENHELM and KATZENSTEIN), A., ii, 379.
- B-Alanine**, copper salt (CALLEGARI), A., i, 937.
- trans*-**Alanine anhydride** (FISCHER and RASKE), A., i, 457.
- d*-**Alanyl-d-alanine** (FISCHER), A., i, 145.
- l*-**Alanyl-d-alanine** (FISCHER and RASKE), A., i, 457.
- l*-**Alanyl diglycyl-l-alanyl glycylglycine** and its ester (FISCHER), A., i, 810.
- l*-**Alanyl glycylglycine** and its hydrochloride (FISCHER), A., i, 810.
- Albumin** soluble in acetic acid, in ascitic fluid (BRETEL), A., ii, 875.
from the blood-serum of the cow (MAXIMOWITSCH), A., i, 224.
influence of neutral salts on the peptic hydrolysis of (LEVITES), A., ii, 692.
affinity constants of some hydrolytic products from (KANITZ), A., ii, 603.
constitution of the indole group in (ELLINGER), A., i, 696.
fission products of, colloidal preparations of, containing gold, silver, or copper (KALLE & Co.), A., i, 912.
artificial change of, into globulin (MOLL), A., i, 53.
complexes of pure (MAYER), A., i, 998.
means for distinguishing true, in urine from mucinoid substances (GRIMBERT and DUFAU), A., ii, 912.
rapid estimation of, in urine (BÜCHNER), A., ii, 912.
- Albumins** from the white of ducks' eggs (PANORMOFF), A., i, 224.
from the white of pigeons' eggs (PANORMOFF), A., i, 223.
- action of dilute hydrochloric acid on (SWIRLOWSKY), A., i, 775.
- Albumose**, crystalline urinary (GRUTTERINK and WEEVERS DE GRAAFF), A., i, 326.
- Alcapton.** See Homogentisic acid.
- Alcaptonuria**, uniformity of homogentisic acid excretion in (GARROD and HELE), A., ii, 108.
- Alcohol.** See Ethyl alcohol.
- Alcohol**, $C_8H_{16}O$, from the action of magnesium methyl iodide on dimethylcyclopentanone (BLANC), A., i, 523.
- $C_{10}H_{16}O$, isomeric, from the chlorocamphenes (SLAWIŃSKI), A., i, 29.
- $C_{10}H_{18}O_2$, and its semicarbazone, from diosphenol (SEMMLER and MCKENZIE), A., i, 373.
- $C_{10}H_{20}O$, and its acetate, from decane- $\alpha\kappa$ -diol (ALBERTI and SMIECIUSZEWSKI), A., i, 619.
- $C_{10}H_{20}O$, from isolaurolene (BLANC), A., i, 524.
- $C_{10}H_{22}O$, from pivaloin (BOUVEAULT and LOQUIN), A., i, 784.
- $C_{14}H_{24}O$, from cyclocitrylideneacetic acid and magnesium methyl bromide (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 660.
- $C_{22}H_{22}O$, from diphenylacetophenone (KOHLER), A., i, 754.
- $C_{22}H_{24}O$, and its isomerides, from the reduction of α -isodypnopinacolin (DAELS), A., i, 357.
- Alcoholates**, formation of, by certain salts in solution in methyl and ethyl alcohols (JONES and McMMASTER), A., i, 329.
- Alcoholic fermentation.** See under Fermentation.
function, the (HENRY), A., i, 329 ; (DELACRE), A., i, 551.
solutions. See under Solutions.
- Alcohols**, formation of (COURTOY), A., i, 788, 925.
aldehydes, and acids, preparation of (CHEMISCHE FABRIK FLÖRSHEIM, H. NOERDLINGER), A., i, 628.
determination of the molecular weights of, by the use of benzoic anhydride (GASCARD), A., i, 722.
esterification of (HOUBEN), A., i, 520.
condensation of, with acetylenic nitriles (MOUREU and LAZENNEC), A., i, 240.
reactions of double decomposition between esters and (BRUNI and CONTARDI), A., i, 621.
reactions of, with *l*-menthylcarbimide (PICKARD, LITTLEBURY, and NEVILLE), T., 93 ; (PICKARD and LITTLEBURY), T., 467 ; P., 71.
oxidation of, to aldehydes and ketones (LANG), A., i, 627.

- Alcohols** of the type OH·CHR·CH₂R, preparation of (BOUVEAULT and LOCQUIN), A., i, 783.
 aromatic, preparation of (METTLER), A., i, 497, 851.
 reduction of (KLAGES, GIESER, and LAUCK), A., i, 661.
 fatty, critical temperature and value of $\frac{ML}{G}$ of some (BROWN), T., 312; P., 39.
 action of, on etherates of magnesium haloiods (MENSCHUTKIN), A., i, 131.
 higher, action of alkaline copper solutions on the rotation of (GROSSMANN), A., ii, 823.
 the Röse-Herzfeld and sulphuric acid methods for the estimation of (VELEY), A., ii, 497.
 estimation of, in spirits (SCHIDROWITZ and KAYE), A., ii, 584.
monohydric, acetyl chloride and hydrochloric acid as reagents for distinguishing between the various types of (HENRY), A., i, 781.
 estimation of the haemolytic action of (FÜHNER and NEUBAUER), A., ii, 687.
polyhydric, mode of formation of (OECHSNER DE CONINCK), A., i, 477.
 action of, on bismuth salts (VANINO and HARTL), A., i, 785.
 hydrolysis of esters of (ABEL), A., ii, 731.
 kinetics of the splitting-off of the acyl groups of esters of, by hydroxyl ions in aqueous homogeneous systems (KREMAN), A., ii, 731.
 lower, molecular arrangement in mixtures of, with water (HOLMES), T., 1774; P., 272.
 primary and secondary saturated, action of hydrogen bromide on (FOURNIER), A., i, 787.
 primary unsaturated, of the fatty series, reduction of, by metal-ammonium compounds (CHABLAY), A., i, 722.
 secondary, from the octane, CHMe₂·[CH₂]₄·CH₃ (HENRY, BUELENS, and MUSSET), A., i, 723.
 secondary and tertiary, boiling points of some (HINRICHHS), A., i, 723.
 tertiary, preparation of (FARBENFARIKEN VORM. F. BAYER & Co.), A., i, 660.
 synthesis of, from 1-methyl-4-cyclohexanone (SABATIER and MAILHE), A., i, 254.
 the :C(OH) group of (HENRY), A., i, 133.
- Alcohols**, tertiary, of the cyclocitrylidene series (VERLEY), A., i, 196.
 See also Amino-alcohols, Glycols, and Hydrols.
- Aldehyde**. See Acetaldehyde.
- Aldehyde**, C₈H₁₂O, and its semicarbazone, from methylenecycloheptane (WALLACH and KÖHLER), A., i, 818.
- Aldehyde bisulphites** (BUCHERER and SCHWALBE), A., ii, 741.
- Aldehydes**, alcohols, and acids, preparation of (CHEMISCHE FABRIK FLÖRSHEIM, H. NOERDLINGER), A., i, 628.
 synthesis of, by Grignard's reaction (MONIER-WILLIAMS), T., 273; P., 22.
 preparation of, from alcohols (LANG), A., i, 627.
 synthesis of, from *as*-disubstituted ethylene glycols and their ethers (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBBERN-SIBBERS, and RIEBEL), A., i, 581.
 new reaction of (CONDUCHÉ), A., i, 593.
 action of primary amines on (RÜGHEIMER), A., i, 418.
 action of ammonia on (TSCHITSCHIBABIN), A., i, 451.
 condensation of, with ethyl α -chloropropionate (DARZENS), A., i, 137.
 action of, on *o*-diamines of the pyrimidine series (TRAUBE and NITHACK), A., i, 214.
 action of diazomethane on (MEYER), A., i, 87.
 action of, on 2:5-dimethylpyrazine (FRANKE), A., i, 47.
 condensation of, with 2:6-dimethylquinoline (GASDA), A., i, 41.
 condensation of, with 2:8-dimethylquinoline (HOFFMANN), A., i, 40.
 condensation of, with indene (THIELE and BÜHNER), A., i, 569.
 condensation of, with 2-methyl-5-ethylpyridine and 2:4-lutidine (LANGER), A., i, 38.
 condensation of, with nitroquinaldines (SCHMIDT), A., i, 39.
 condensation of, with rhodanic acid (BARGELLINI), A., i, 383, 536.
 as acids (v. EULER), A., i, 140.
 conversion of, into bases (WALLACH, HÜTTNER, and ALTBURG), A., i, 160.
 bispyrazolone derivatives, action of phosphorus oxychloride on (MICHAELIS and ZILG), A., i, 216.
 diphenylhydrazones of a series of (MAURENBRECHER), A., i, 985.

- Aldehydes**, phenylhydrazones of, relation between the absorption spectra and chemical constitution of (BALY and TUCK), T., 982; P., 142.
 compounds of, with thiosulphuric acid (SCHMIDT), A., i, 711.
 and ketones, preparation of thio-compounds from (COMPAGNIE MORANA), A., i, 23.
 indirect estimation of, in oil of lemons (BERTÉ), A., ii, 132.
 estimation of the carbonyl group in (SMITH), A., ii, 312.
- Aldehydes**, alicyclic, formation of, from the simplest methylenehydrocarbons of various ring systems (WALLACH, BESCHKE, EVANS, and ISAAC), A., i, 563; (WALLACH and KÖHLER), A., i, 818.
 aromatic, synthesis of (GATTERMANN), A., i, 589.
 electrolytic reduction of (LAW), T., 1512, 1520; P., 237.
 condensation of, with fluorene (THIELE and HENLE), A., i, 571.
 reactions of, with glucosides and sugars (ALBERDA VAN EKENSTEIN and BLANKSMA), A., i, 511.
 thio-derivatives of, and their desulphurisation (MANCHOT, ZAHN, and KRÄNZLEIN), A., i, 752.
 hexahydroaromatic, preparation of (DARZENS and LEFEBURE), A., i, 430.
 See also Amino-aldehydes and Di-aldehydes.
- Aldehydo-acids**, action of diazomethane on (MEYER), A., i, 87.
- o-Aldehydo-acids**, constitution of, in aqueous solution (WEIGSCHEIDER), A., i, 86.
- γ-Aldehydo-acids** (BLAISE and COURTOY), A., i, 927.
- Aldehydo-acids**, *o*- or *γ*, action of Grignard's reagent on (SIMONIS, MARBEN, and MERMOD), A., i, 32.
- Aldehydrol** (COLLES), T., 1246; P., 207.
- Aldoximes**, action of amyl nitrite on (FRANZEN and ZIMMERMANN), A., i, 388.
 action of sodium hypochlorite on (PONZIO), A., i, 482; (PONZIO and BUSTI), A., i, 855.
 conversion of, into nitriles (BORSCHE), A., i, 664.
 aromatic, oxidation of, with amyl nitrite (MINUNNI and CIUSA), A., i, 187.
- Algæ**, action of salts of copper, mercury, and silver on (BOKORNY), A., ii, 42.
Algæ, organic acids as a source of carbon for (TREBOUX), A., ii, 478.
 toxic action of various substances on (BOKORNY), A., ii, 480.
 fresh-water, as human food (NAMIKAWA), A., ii, 884.
- Alimentary canal**, action of ergot on the (MELTZER and AUER), A., ii, 878.
 embryonic, enzymes of the (MENDEL), A., ii, 181.
- of tadpoles, action of muscle proteids of different classes of animals on (BABÁK), A., ii, 101.
- Alimentary substances**, detection of fluorine in (VILA and PIETTRE), A., i, 915; (VILLE and DERRIEN), A., ii, 390.
- Alizarin**, action of ammonia on (SCHOLL and PARTHEY), A., i, 439.
 ethers of (GRAEBE and THODE), A., i, 863.
 monomethyl ethers, constitution of (DECKER and LAUBE), A., i, 192.
- Alizarin**, *α*- and *β*-amino-, acyl derivatives of (SCHULTZ and ERBER), A., i, 968.
- Alizarin-blue-amide** and -quinone (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 889.
- Alizarin-3:5-disulphonic acid** and its acid potassium salt (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 866.
- Alizarinimide** (PRUD'HOMME), A., i, 193, 866.
- Alizarin-3-sulphonic acid**, *α*-amino-, and its salts (SCHULTZ and ERBER), A., i, 969.
- Alkali bromides**, action of, on barium carbonate (TAPONIER), A., ii, 540.
 carbonate, mixtures of, with an alkaline earth carbonate, decomposition of, under the action of heat in a vacuum (LEBEAU), A., ii, 85.
 carbonates, volatility and dissociation of (LEBEAU), A., ii, 161.
 chlorides, electrolysis of (MALLET and GUYE), A., ii, 649.
 electrolysis of, with alternating currents (COPPADORO), A., ii, 214, 849.
 double salts of, with mercuric chloride and their solubility (FOOTE and LEVY), A., ii, 231.
 chromates (SCHREINEMAKERS), A., ii, 24, 287.
 solubility of (SCHREINEMAKERS and FILIPPO), A., ii, 445.
 compounds, insoluble, in living vegetable tissues (BERTHELOT), A., ii, 117.

- Alkali fluorides**, production of ozone by the electrolysis of (PRIDEAUX), A., ii, 741.
- hydroxides, preparation of, by means of alkali silicofluorides (REICH), A., ii, 228.
- iodides, detection of nitrates in (BARONI), A., ii, 578.
- polyiodides, solid, their stability and conditions of existence at 25° (AREGG and HAMBURGER), A., ii, 747.
- metals, action of, on a molecule of water (DE FORCRAND), A., ii, 831.
- nitrates, mixed crystals of (WALLERANT), A., ii, 151.
- nitrites, production of (FARBENFABRIKEN VORM. F. BAYER & CO.), A., ii, 611.
- interaction of, with metallic ethyl-sulphates (RÂY and NEOGI), T., 1900; P., 259.
- oxides and alkaline earth oxides, comparisons between (DE FORCRAND), A., ii, 727.
- salts, catalytic action of, in the fixation of atmospheric oxygen by solutions of the phenols (FOUARD), A., i, 421.
- sulphites, action of acetone on (ROTHMUND), A., i, 233.
- Alkaline earth borostannates** (OUVRARD), A., ii, 669.
- carbonate, mixtures of, with an alkali carbonate, decomposition of, under the action of heat in a vacuum (LEBEAU), A., ii, 85.
- metals, action of, on a molecule of water (DE FORCRAND), A., ii, 831.
- detection of, in qualitative analysis, by spectrum analysis (RIESENFIELD and WOHLERS), A., ii, 804.
- gelatinous salts of the (NEUBERG and NEIMANN), A., ii, 753.
- nitrites, interaction of, with metallic ethylsulphates (RÂY and NEOGI), T., 1900; P., 259.
- oxides and alkali oxides, comparisons between (DE FORCRAND), A., ii, 727.
- salts, catalytic action of, in the fixation of atmospheric oxygen by solutions of phenols (FOUARD), A., i, 421.
- sulphates, compounds of, with stannic sulphate (WEINLAND and KÜHL), A., ii, 762.
- Alkaloids**, origin of, in plants (PICTET), A., ii, 884.
- of *Anagyris foetida* (GOESSMANN), A., i, 378.
- of *Bocconia cordata* (SCHLÖTTERBECK and BLOME), A., i, 36.
- Alkaloids** of calumba root (GADAMER; GÜNZEL), A., i, 976.
- cinchona, constitution of (KOENIGS, BERNHART, and IBELE), A., i, 762.
- of Javanese coca, assay of the (DE JONG), A., ii, 315, 625.
- from coca leaves (DE JONG), A., i, 978.
- from Datura which induce mydriasis (SCHMIDT and KIRCHER), A., i, 379.
- from opium (FALTIS), A., i, 979.
- of tobacco (PICTET), A., i, 979.
- of the rhizome of *Veratrum album* and their estimation (BREDEMANN), A., ii, 506.
- compounds of the hydrochlorides of, with the chlorides of the heavy metals and the corresponding bromine compounds (CHRISTENSEN), A., i, 875.
- influence of electrolytes on the toxicity of (ROBERTSON), A., ii, 567.
- hydrolytic activity of liver histozymes and enzymes on some (GONNERMANN), A., i, 780.
- action of, on the iris (ANDERSON), A., ii, 104.
- action of, on the spontaneous movements of plain muscle (BECK), A., ii, 111.
- action of, on cockroaches (MICHALSKI), A., ii, 695.
- action of, on pollen (COUPIN), A., ii, 384.
- reactions of (REICHARD), A., ii, 589, 637, 817, 818, 909; (MONTI), A., ii, 908.
- new reagents for, and their microscopical application (HERDER), A., ii, 406.
- precipitation and estimation of (JONESCU), A., ii, 637.
- Alkylcarbonates**, electrolytic preparation of (SZILÁRD), A., i, 621.
- haloids, addition of, to alkylated sugars and glucosides (IRVINE and MOODIE), T., 1578; P., 204.
- peroxide, probable formation of (KLASON and CARLSON), A., i, 787.
- tert.-Alkyl chlorides**, action of, on *p*-nitrophenol salts (SPIEGEL and KAUFMANN), A., i, 833.
- Alkylhomonarceines** (TAMBACH and JAEGER), A., i, 879.
- Alkylmalonic acids**, ethyl esters, preparation of pure (MICHAEL), A., i, 63.
- Alkylmeconines** (MERMOD and SIMONIS), A., i, 303.
- Alkynarceines** (TAMBACH and JAEGER), A., i, 879.
- Alkyloxides**, electrolytic preparation of (SZILÁRD), A., i, 621.

- β -Alkyloxyacrylonitriles**, synthesis of β -substituted derivatives of (MOUREU and LAZENNEC), A., i, 240.
- Alkyloxy-group**, influence of, on the reactivity of α -halogen atoms in aromatic compounds (WERNER, SCHORN-DORFF, and CHOROWER), A., i, 180; (GOLDSCHMIEDT), A., i, 241.
- 4-Alkyloxy- α -naphthols**, preparation of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 951.
- β -Alkylpivalic acids**, β -hydroxy-, esters, dehydration of (COURTOT), A., i, 230, 396, 554; (BLAISE and COURTOT), A., i, 553, 794.
- Alkylthiophens**, influence of light and heat on the chlorination and bromination of (OPOLSKI), A., i, 33.
- Allantoic acid**, ethyl ester (SIMON and CHAVANNE), A., i, 637.
- Allantoin**, new synthesis of (SIMON and CHAVANNE), A., i, 636.
- acidic constants of (WOOD), T., 1834.
- excretion of, in thymus feeding (M'LACHLAN; PATON), A., ii, 470.
- Allantoin, imino-** (DENICKE), A., i, 938.
- Allene**, distinction between allylene and (LOSSEN and DORNO), A., i, 62.
- Allium Cepa**, formation of respiration enzymes in injured bulbs of (KRASNOS-SELSKI), A., ii, 572.
- Alloxan**, acidic constants of (WOOD), T., 1835.
- Alloxanphenylmethylhydrazone** (WHITELEY), P., 201.
- Alloxatin**, action of primary amines on (MÖHLAU and LITTER), A., i, 611, 612.
- acetyl and benzoyl derivatives of (BEHREND and FRIEDRICH), A., i, 313.
- Alloxanyl- α -aminodi- p -tolylamine**, -methyl- α -phenylenediamine, and -phenyl- α -phenylenediamine (KÜHLING and KASELITZ), A., i, 463.
- Alloxazine** and its sodium salt (MÖHLAU and LITTER), A., i, 612.
- Alloys**, use of thermal analysis to determine the composition of (TAMMANN), A., ii, 10.
- eutectic, laws of the reciprocal action of solid substances in (FLAWITZKY), A., ii, 152.
- ferromagnetic, magnetisation and magnetic change of length in, at temperatures ranging from -186° to $+1200^{\circ}$ (HONDA and SHIMIZU), A., ii, 69.
- use of metallic deposits in the micrographical examination of (GIOLITTI), A., ii, 759.
- Alloys**, separation of constituents of (BOCK), A., ii, 24.
- estimation of silver in, in the wet way (ALTNÉDER), A., ii, 395.
- Allyl alcohol**, ozonide of (HARRIES and LANGHELD), A., i, 226.
- Allylacetone**, ozonide of (HARRIES and LANGHELD), A., i, 226.
- 2-Allylamino-4-methylthiazole** and its acetyl derivative (YOUNG and CROOKES), T., 66.
- Allylene**, distinction between allene and (LOSSEN and DORNO), A., i, 62.
- 2-Allylimino-3:4-dimethyl-2:3-dihydrothiazole** and its platinichloride and hydrolysis (YOUNG and CROOKES), T., 66.
- Almonds**, bitter, effect of heat on the toxicity of (VELARDI), A., i, 444.
- Aloe-emodin**, attempts to prepare (OESTERLE), A., i, 973.
- Aloxanthin** (OESTERLE), A., i, 527.
- Altitudes**, high, influence of, on general nutrition (GUILLEMARD and MOOC), A., ii, 101.
- Aluminium**, analogies between, and thallium (FORTINI), A., ii, 87.
- action of silicon on pure and impure (VIGOUROUX), A., ii, 30.
- Aluminium alloys**, decomposition of an aqueous solution of copper sulphate by (PÉCHEUX), A., ii, 286.
- analysis of (FORMENTI), A., ii, 127.
- with antimony (TAMMANN), A., ii, 88.
- with bismuth and with lead, determination of the melting points of, by thermo-electric pyrometers (PÉCHEUX), A., ii, 758.
- with bismuth and with tin (GwyER), A., ii, 544.
- with calcium (STOCKEM), A., ii, 285.
- with manganese and copper, Heusler's magnetic (GRAY), A., ii, 266.
- with sodium (MATHEWSON), A., ii, 165.
- with thallium (DOERINCKEL), A., ii, 166.
- with thorium (HÖNIGSCHMID), A., ii, 173.
- with zinc, estimation of zinc in (SELIGMAN and WILLOTT), A., ii, 197.
- Aluminium salts**, action of, on germination (MICHEELS and DE HEEN), A., ii, 191; (HOUSE and GIES), A., ii, 191.
- Aluminium carbonate** (GAWALOWSKI), A., ii, 450.
- hydroxide, partial cleavage of bivalent bases on precipitation of (STRÖM-HOLM), A., ii, 343.
- nitride (WHITE and KIRSCHBRAUN) A., ii, 853.

- Aluminium** barium phosphate. See Gorceixite.
 lead phosphate. See Plumbogummite.
 potassium phosphate, hydrated. See Palmerite.
 strontium sulphato-phosphate. See Harttite.
 lithium silicates (WEYBERG), A., ii, 23.
 silicides, double (MANCHOT and KIESER), A., ii, 83.
 sulphate, equilibrium in the system, water, lithium sulphate, and (SCHREINEMAKERS and DE WAAL), A., ii, 855.
 compound of, with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 631.
 basic, preparation of (SPENCE & Co.), A., ii, 614.
 See also Doughtyite.
- Aluminium**, analysis of (FORMENTI), A., ii, 127.
 influence of the presence of titanium on the estimation of, in presence of iron and phosphoric acid (PELLET and FRIBOURG), A., ii, 54.
 separation of glucinum from (GLASSMANN), A., ii, 902.
- Alunogen** from Colorado (HEADDEN), A., ii, 38.
- Amalgams**. See Mercury alloys.
- Amanita muscaria*. See Fly agaric.
- Amethyst**, natural and artificial coloration of (BERTHELOT), A., ii, 863.
- Amides**, formation of (MEYER), A., i, 358.
 from aliphatic sulphonic acids, abnormality in melting points of (DUGUET), A., i, 475.
 alone and in combination, behaviour of, in carnivorous metabolism (VÖLTZ), A., ii, 560.
 acetylenic, formation of (MOUREU and LAZENNEC), A., i, 148.
 condensation of, with phenols (MOUREU and LAZENNEC), A., i, 432.
 acid, methylole compounds of (EINHORN, BISCHKOPFF, LADISCH, MAUERMAYER, SCHUPP, SPRÖNGERTS, and SZELINSKI), A., i, 245; (EINHORN), A., i, 486.
 silver derivatives of (LEY and SCHAEFER), A., ii, 327.
 substituted, preparation of (BODROUX), A., i, 240.
- Amidines**, contributions to the chemistry of (YOUNG and CROOKES), T., 59.
- Amidosulphuric acid** (*aminosulphonic acid*), copper and nickel salts (CALLEGARI), A., i, 937.
- Amine-ones**, cyclic, reduction of (DECKER and DUNANT), A., i, 901.
- Amines**, new synthesis of, by means of finely-divided nickel (MAILHE), A., i, 560.
 equilibrium of binary solutions of, with phenols (KREMANN), A., ii, 266.
 oxidation of (VORLÄNDER), A., i, 729; (VORLÄNDER, BLAU, and WALLIS), A., i, 730.
 condensation of, with acetylenic esters (MOUREU and LAZENNEC), A., i, 956.
 condensation of, with acetylenic nitriles (MOUREU and LAZENNEC), A., i, 956.
 action of acyl chlorides on mixtures of (DAINS), A., i, 804.
 action of, on allyl formate (VAN ROMBURGH), A., i, 2.
 action of, on formic esters of glycols and glycerol (VAN ROMBURGH and VAN DORSSEN), A., i, 3.
 action of, on mercury salts (STRÖM-HOLM), A., i, 935.
 condensation of, with nitro-derivatives in presence of sodium (ANGELI and MARCHETTI), A., i, 716.
 action of, on quaternary salts of 5-phenylacridine-*o*-carboxylic acid (DECKER and SCHENK), A., i, 304.
 combination of magnesium bromide with (MENSCHUTKIN), A., i, 943.
 molecular compounds of, with nitro-compounds (NOELTING and SOMMERHOFF), A., i, 157; (KREMANN), A., i, 347; (SOMMERHOFF), A., i, 658.
- Amines**, aliphatic, action of oxygen on, in presence of copper (TRAUBE and SCHÖNEWALD), A., i, 143.
 compounds of palladium haloids with (GUTBIER and KRELL), A., i, 402.
 aromatic, new method of preparing (SACHS, APPENZELLER, HEROLD, MYLO, SCHÄDEL, and SUTTER), A., i, 829; (SACHS), A., i, 949.
 action of bromine on (FRIES), A., i, 644.
 compounds of, with aromatic nitro-derivatives (JACKSON and CLARKE), P., 83.
 ω -sulphonic acids and ω -cyanides of (BUCHERER and SCHWALBE), A., i, 828.
 primary aromatic, action of esters of certain dibasic acids on magnesium halogen derivatives of (BODROUX), A., i, 240.
 action of sodium hypobromite on (MEIGEN and NOTTEBOHM), A., i, 319.
 tertiary aromatic (HAEUSSERMANN), A., i, 910.

Amines, primary cyclic, hydrogen phosphites of (LEMOULT), A., i, 493.
 primary, action of, on aldehydes (RÜGHEIMER), A., i, 418.
 action of, on alloxanthin (MÖHLAU and LITTER), A., i, 611.
 condensation of, with dimethyl-dihydroresorcin and 5-chloro-3-keto-1:1-dimethyl- Δ^4 -tetrahydrobenzene (HAAS), T., 187, 387; P., 17, 63.
 secondary mixed, synthesis of, by Hinsberg's method (MULDER), A., i, 484.
 See also Bases and Diamines.

Aminoacetals and aminoaldehydes (WOHL ; WOHL, SCHÄFER, and THIELE), A., i, 105 ; (WOHL, HERTZBERG, and LOSANITSCH), A., i, 106 ; (WOHL and LOSANITSCH), A., i, 107.

Amino-acids, polypeptides, and proteids (FISCHER), A., i, 324.
 in blood and lymph (HOWELL), A., ii, 868.
 from edestin from pumpkin seeds (ABDERHALDEN and BERGHAUSEN), A., i, 999.
 of crystallised egg-albumin (ABDERHALDEN and PREGI), A., i, 53.
 of keratin from goose feathers (ABDERHALDEN and LE COUNT), A., i, 56.
 from horse-hair (ABDERHALDEN and WELLS), A., i, 55.
 of legumin (ABDERHALDEN and BABKIN), A., i, 546.
 from proteids, combination of (MOREL), A., i, 730.
 free, in urine (FORSSNER), A., ii, 243.
 in normal urine (EMDEN and REESK), A., ii, 108 ; (WOHLGEMUTH and NEUBERG), A., ii, 874.
 optically active, excretion of, in urine (REISS), A., ii, 785.
 in the urine of children (RIETSCHEL and LANGSTEIN), A., ii, 785.
 in normal human urine (ABDERHALDEN and SCHITTENHELM), A., ii, 470 ; (MOHR), A., ii, 693.
 in diabetic urine (ABDERHALDEN and SCHITTENHELM), A., ii, 693.
 in normal and pathological urine (SAMUELY), A., ii, 470.
 isolation of (SIEGFRIED), A., i, 144.
 of proteid origin, synthesis of (HUGOUNENQ and MOREL), A., i, 85.
 affinity constants of (WEGSCHEIDER), A., ii, 77.
 methylated, affinity constants of (WALKER), A., ii, 735.
 linking up of (MOHR and KÖHLER), A., i, 359 ; (MEYER), A., i, 432.

Amino-acids, Grignard's reaction with (PAAL and WEIDENKAFF), A., i, 236.
 oxidation of, with the production of substances of biological importance (DAKIN), A., ii, 105.
 copper and nickel salts of (CALLEGARI), A., i, 937.
 phosphotungstates of (BARBER), A., i, 633.
 fate of, in dogs (ABDERHALDEN and TERUUCHI), A., ii, 293.
 behaviour of, administered to animals (PLAUT and REESE), A., ii, 110.
 excretion of, in gout and leucæmia (LIPSTEIN), A., ii, 109.
 precipitability of, by phosphotungstic acid (LEVENE and BEATTY), A., i, 339.
 racemic. See Racemic.

α -Amino-acids, synthesis of (ZELINSKY and STADNIKOFF), A., i, 425 ; (KNOOP and HOESSLI), A., i, 431 ; (BUCHERER), A., i, 584.
 synthesis of, by means of bromo-fatty acids (FISCHER and SCHMITZ), A., i, 182.

Amino-acids. See also Dipeptides, Peptides, and Polypeptides.

Amino-alcohols, preparation of (RIEDEL), A., i, 631 ; (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 936.

Aminoaldehydes and aminoacetals (WOHL ; WOHL, SCHÄFER, and THIELE), A., i, 105 ; (WOHL, HERTZBERG, and LOSANITSCH), A., i, 106 ; (WOHL and LOSANITSCH), A., i, 107.

Aminoalkyl esters, preparation of (RIEDEL), A., i, 843 ; (CHEMISCHE FABRIK AUF AKTIEN), A., i, 952.

Aminocarboxylic acids, affinity constants of, as determined by the aid of methyl-orange (VELEY), P., 313.

Amino-compounds, action of sodium hypobromite on some (STUCHETZ), A., i, 812.
 aromatic, use of methylene-blue for the estimation of sulphonic derivatives of (VAUBEL and BARTELT), A., ii, 207.

Amino-esters, action of imino-ethers on (FINGER and SCHUPP), A., i, 901.

Amino-groups, direct introduction of, into the nucleus of aromatic nitro-compounds (MEISENHEIMER and PATZIG), A., i, 452.

Amino-substances, amphoteric, union of, with carbon dioxide (SIEGFRIED), A., i, 324.

Aminosulphonic acid. See Amido-sulphuric acid.

- Aminosulphonic acids**, affinity constants of, as determined by the aid of methyl-orange (VELEY), P., 313.
- Ammonia**, amount and origin of, in the products of the eruption of Vesuvius in April, 1906 (STOKLASA), A., ii, 864.
- formation of, by means of the Tesla discharge (FINDLAY), A., ii, 261.
- physical constants of (PERMAN and DAVIES), A., ii, 743.
- action of the silent electric discharge on (POHL), A., ii, 437.
- electrolytic oxidation of, and its dependence on the material of the anode (MÜLLER and SPITZER), A., ii, 158 ; (TRAUBE and BILTZ), A., ii, 159.
- liquid, vapour tension of (BRILL), A., ii, 847.
- action of, on certain acidic oxides (ROSENHEIM and JACOBSON), A., ii, 760.
- oxidation of (SMITH), T., 473 ; P., 39 ; (SCHMIDT and BÖCKER), A., ii, 349.
- oxidation of, by alkali persulphates in alkaline solution (KEMPF), A., ii, 19.
- action of, on allyl formate (VAN ROMBURGH), A., i, 2.
- action of, on formic esters of glycols and glycerol (VAN ROMBURGH and VAN DORSSEN), A., i, 3.
- action of, on mercury salts (STRÖMBERG), A., i, 935.
- action of gaseous, on anhydrous neodymium chloride (MATIGNON and TRANNOY), A., ii, 449.
- action of nitrogen peroxide on (BESSION and ROSSET), A., ii, 280.
- action of gaseous, on phosphorus tribromide or tri-iodide (HUGOT), A., ii, 83.
- action of, on phosphorus pentasulphide (STOCK, HOFFMANN, MÜLLER, v. SCHÖNTHAN, and KÜCHLER), A., ii, 535.
- action of, on strontium (ROEDERER), A., ii, 752.
- in the expired air and blood (PICCININI), A., ii, 460.
- compounds of, with aurous bromide, chloride, and iodide (MEYER), A., ii, 664.
- derivatives, oxidation of, by permanganic acid (VORLÄNDER), A., i, 729 ; (VORLÄNDER, BLAU, and WALLIS), A., i, 730.
- estimation of, by the conductivity of its solution (HILL), T., 1274 ; P., 204.
- estimation of small quantities of, in presence of urea (FRENKEL), A., ii, 391.
- Ammonia**, estimation of, in animal tissues (GRAFE), A., ii, 709.
- estimation of, in used lime liquors (PROCTER and McCANDLISH), A., ii, 392.
- estimation of, in waters by means of Nessler's reagent (BUISSON), A., ii, 704.
- Ammoniacal compounds**, theory of, (KURILOFF), A., ii, 349.
- Ammono-metallic compounds**. See Metalammonium compounds and under the separate Metals.
- Ammonium**, electrical phenomena accompanying the decomposition of (COEHN), A., ii, 725.
- Ammonium amalgam**, constitution of (RICH and TRAVERS), T., 872 ; P., 136.
- Ammonium salts**, asymmetric, isomerism with (WEDEKIND and FRÖHLICH), A., i, 162.
- optically active (WEDEKIND and FRÖHLICH), A., i, 14 ; (WEDEKIND), A., i, 161.
- rate of auto-racemisation of (WEDEKIND), A., i, 419 ; ii, 660 ; (GOLDSCHMIDT), A., ii, 612.
- hydrolysis of (NAUMANN and RÜCKER), A., ii, 851.
- hydrolysis of, in presence of iodides and iodates (MOODY), A., ii, 851.
- hydrolysis of, by water (HILL), T., 1273 ; P., 204.
- action of nitrogen peroxide on (BESSION and ROSSET), A., ii, 280.
- action of sodium hypobromite on (CORRADI), A., ii, 505.
- Ammonium borates** (ATTERBERG), A., ii, 281.
- polyiodide (ABEGG and HAMBURGER), A., ii, 748.
- molybdilactate and tungstilactate (HENDERSON), P., 148.
- nitrate, crystalline modification of, stable in two intervals of temperature (WALLERANT), A., ii, 152.
- selenate and the question of isodimorphism in the alkali series (TUTTON), T., 1059 ; P., 153.
- sulphate, conductivity of, in mixtures of sulphuric acid and water (BOIZARD), A., ii, 419.
- equilibrium in the system, lithium sulphate, water, and (SCHREINEMAKERS and COCHERET), A., ii, 424.
- decomposition of, by sulphuric acid, in presence of platinum (DELÉPINE), A., ii, 24, 93.
- decomposition of, by sulphuric acid, in presence of platinum and iridium (DELÉPINE), A., ii, 289,

- Ammonium sulphate**, double salt of, with antimony sulphate (METZL), A., ii, 174.
manganous sulphate (LANG), A., i, 627.
vanadium sulphate (STÄHLER and WIRTHWEIN), A., ii, 34.
hydrogen sulphide, formation of (BRINER), A., ii, 529.
vanadate, preparation of (OHLY), A., ii, 762.
- Ammonium compounds** (DECKER and SCHENK), A., i, 304.
 substituted, absence of isomerism in (JONES), A., i, 15.
- Ammonium cyanide**, action of, on the saturated ketones (v. GULEWITSCH and WASMUS), A., i, 409.
 behaviour of, with ketones of the series $\text{CO}(\text{C}_n\text{H}_{2n-7})_2$ (WIEKMANN), A., i, 433.
 action of, on ketones of the series $\text{CO}(\text{C}_n\text{H}_{2n-7})(\text{C}_n\text{H}_{2n+1})$ (JAWELOFF), A., i, 426.
ferric ferrocyanide (HOFMANN and ARNOLDI), A., i, 562.
thiocyanate, kinetics of the formation of, from thiocarbimide in dilute aqueous solution (DUTOIT and GAGNAUX), A., ii, 660.
- Ammonium dye bases**, physiological evidence as to the constitution of (FÜHNER), A., ii, 622.
- Ammonium sulphide group**, qualitative separation of metals of the (DAITZ), A., ii, 308.
- Ammonium syngenite** (D'ANS), A., ii, 751.
- Amœbæ**, action of various reagents on (THOMAS), A., ii, 478.
- Amphibole** from Cevadaes, Portugal (HLAWATSCHE), A., ii, 775.
- Amphiboles**, orthorhombic and monoclinic, preparation of (ALLEN, WRIGHT, and CLEMENT), A., ii, 866.
- Amygdalin** from the seeds of *Eriobotrya japonica* (HÉRISSEY), A., ii, 882.
 effect of heat on (VELARDI), A., i, 444.
- r*-Amyl alcohol**, preparation of (FREUNDLER and DAMOND), A., i, 2.
- Amyl alcohols**. See also Dimethyl-ethylcarbinol and β -Methylbutyl alcohol.
- Amyl nitrite**, action of, on oximes (FRANZEN and ZIMMERMANN), A., i, 388.
- iso*Amyl nitrite**, action of, on pyrogallol (PERKIN and STEVEN), T., 802; P., 113.
- iso*Amylarsine disulphide** and ***iso*Amylarsonic acid** (DEHN and MCGRATH), A., i, 341
- Amylase** of pancreatic juice (BIERRY and GIAJA), A., ii, 780.
 development of, during germination (EFFRONT), A., ii, 116.
 action of, on starch (MAQUENNE and ROUX), A., i, 327, 547; (FERNBACH), A., i, 327; (FERNBACH and WOLFF), A., i, 484.
- iso*Amyleyanamide** (McKEE), A., i, 732.
- Amylenes**. See *as*-Methyllethylethylene and Trimethyllethylene.
- Amyloytic action**, influence of certain amphoteric electrolytes on (FORD and GUTHRIE), T., 76.
- Amyloses**, estimation of insoluble, in starches (WOLFF), A., ii, 500.
- 4-*iso*Amyloxy- α -naphthol** (BADISCHE ANILIN- & SODA-FABRIK), A., i, 951.
- Amylpropionic acid** and its amide and nitrile (MOUREU and LAZENNEC), A., i, 148.
- β -Amyrin acetate**, occurrence of, in some varieties of gutta-percha (VAN ROMBURGH and COHEN), A., i, 197.
- Anæmia**, bacterial processes in advanced (HERTER), A., ii, 786.
 cerebral, effect of, on nerve cells (HILL and MOTT), A., ii, 240.
- Anæsthesia**, chemistry of (MOORE and ROAF), A., ii, 187.
 by ethyl ether, acetonuria following (BALDWIN), A., ii, 108.
- Anæsthetics**, action of (BROWN), A., ii, 105.
- Anagyris foetida*, alkaloids of (GOESSMANN), A., i, 379.
- Analcite** from Montreal (HARRINGTON), A., ii, 867.
- Analysis**, some uses of carbon tetrachloride in (GRAEFE), A., ii, 201.
 use of chloric acid in (BERNARD), A., ii, 305.
 ignition in a vacuum by means of the electric furnace (HAAGN), A., ii, 48.
 use of low temperatures in (d'ARSONVAL and BORDAS), A., ii, 497.
 measurement of standard and other solutions by means of chemical measures (SCHLOESSER and GRIMM), A., ii, 892.
- determination of the strength of the solutions used in nitrogen estimations (MACH), A., ii, 49.
- preparation of sulphuric acid of known strength by specific gravity determinations (ATEN), A., ii, 893.
 new form of absorption tube (PERMAN), A., ii, 390.

Analysis, biochemical, methods of forming hydrazines and their influence on (TAKUGI), A., ii, 136.
 electrical elementary (v. KONEK), A., ii, 583.
 electrolytic, use of the rotating anode and mercury cathode in (KOLLOCK and SMITH), A., ii, 194.
 of metals (SAND), P., 43.
 elementary, experiments with new apparatus for (HOLDE; DENNSTEDT), A., ii, 398.
 simplified method of, for scientific purposes (DENNSTEDT), A., ii, 51.
 simple method of, for technical purposes (DENNSTEDT), A., ii, 306.
 of organic compounds, new method for the (CARRASCO), A., ii, 200; (CARRASCO and PLANCHER), A., ii, 201; (MORSE and GRAY), A., ii, 399.
 supposed sources of error in the simplified method of (DENNSTEDT), A., ii, 200; (HERMANN), A., ii, 398.
 modification of Dennstedt's method of (MAREK), A., ii, 496, 802; (DENNSTEDT), A., ii, 632.
 organic, apparatus for (MORSE and GRAY), A., ii, 399; (RUPP), A., ii, 802.
 organic ultimate, platinum gauze for contact action in (HERAEUS), A., ii, 900.
 qualitative, without using hydrogen sulphide (EBLER), A., ii, 126.
 detection of the alkaline earth metals in, by spectrum analysis (RIESENFIELD and WOHLERS), A., ii, 804.
 a system of, including nearly all the metallic elements (NOYES), A., ii, 803.
 of metals of the ammonium sulphide group (DAITZ), A., ii, 308.
 quantitative, use of ozone in (JAN-NASCH and GOTTSCHALK), A., ii, 577.
 refractometric (LÖWE), A., ii, 121.
 spectrum. See Spectrum under Photochemistry.
 thermal, employment of (TAMMANN), A., ii, 10.
 volumetric, report on graduated vessels at the Sixth International Congress for Applied Chemistry at Rome, 1906, A., ii, 576.
 calculations in (PETERSEN), A., ii, 194; (BRUHNS), A., ii, 389.

Analysis, volumetric, sodium carbottate and sodium oxalate for standardising purposes (SØRENSEN and ANDERSEN), A., ii, 389.
 methods for preparing normal acids (MASCHHAUPT), A., ii, 797.
 preparation of standard solutions (ACREE and BRUNEL), A., ii, 703.
 preservation of standardised liquids (RESCH), A., ii, 576.
 standardisation of iodine solutions (METZL), A., ii, 194; (LUTZ), A., ii, 577.
 standardisation of iodine and thiosulphate solutions (BRUHNS), A., ii, 577.
 back reactions in iodine titrations (DAVIES and PERMAN), A., ii, 489.
 use of hydrazine salts in (RIMINI), A., ii, 897.
 See also Acidimetry, Colorimetry, and Indicators.
Anatin and **Anatinin** from the white of ducks' eggs (PANORMOFF), A., i, 224.
Andropogon Nardus, var. *genuinus*. See Lemon-grass oil.
Anethole, action of mercuric acetate on (BALBIANO and PAOLINI), A., i, 186.
Anethole oxide and its isomeride (HOERING), A., i, 951.
Angostura bases (BECKURTS, FRERICHS, and LACHWITZ), A., i, 34.
Anhydrides, acid, reaction of, with dianaphthalopyranol and xanthydrolic (FOSSE), A., i, 691.
 of monobasic organic acids, preparation of (VEREIN FÜR CHEMISCHE INDUSTRIE IN FRANKFURT), A., i, 3, 621.
 of dibasic acids (VOERMAN), A., i, 795; (BLAISE), A., i, 796.
 of organic acids, preparation of (SOMMER), A., i, 791.
Anhydrite, formation of, at 83° (VAN'T HOFF, FARUP, and D'ANS), A., ii, 236.
Anhydrocamphoronic chloride, i-bromo-(NOYES and DOUGHTY), A., i, 5.
Anhydroformaldehyde dimethyl-p-phenylenediamine mercaptan. See 5-Dimethylamino-2-methylenearminophenyl mercaptan.
Anhydro- α - and β -naphthylidiphenyl-carbinols (CLOUGH), T., 774; P., 109.
Anhydro-oxalic acid, ethyl ester (MOL), A., i, 4.
Anhydroisopropylidenebis-1:3-phenyl-methylpyrazolone and its derivatives and dibromo- and dinitro- (MICHAELIS and ZILG), A., i, 217.

- a-Anhydropulegonehydroxylamine** and its tetrahydro- and benzylidene derivatives (SEMMLER), A., i, 969.
- Anhydrotrimethylbutanetricarboxylic acid** (PERKIN and THORPE), T., 786.
- Anildiacetic-2-carboxylic acid**, 5-nitro-, and its potassium salt (SCHWARZ), A., i, 90.
- Anilides**, formation of (GOLDSCHMIDT and BRÄUER), A., i, 158. influence of catalysts on the formation of (MENSCHUTKIN), A., i, 494. of fatty sulphonic acids, abnormality in the melting points of (DUGUET), A., i, 475. thio-fatty (BECKURTS, BEYER, FREERICHS, and HARTWIG), A., i, 650.
- Aniline**, solution equilibrium of, with 2:4-dinitrophenol (KREMMANN), A., i, 884. acetyl derivative. See Acetanilide. benzoyl derivative. See Benzanilide. isosuccinic acid derivative, antipyretic action of (MALERBA), A., ii, 693. compounds of, with 1:2-anthraquinone (LAGODZINSKI), A., i, 293. coupling of, with benzidine (VIGNON), A., i, 391. compounds of, with magnesium bromide (MENSCHUTKIN), A., i, 943. compound of, with mercuric iodide (FRANÇOIS), A., i, 644. compounds of, with metallic thiocyanates (GROSSMANN and HÜNSELER), A., i, 8. hydrochloride and chloral alcoholate, three-phase lines in (ROOZEBOOM and LEOPOLD), A., ii, 654. hydrogen phosphite (LEMOULT), A., i, 493.
- Aniline**, 2:3-dibromo- and 2-bromo-6-nitro- (KÖRNER and CONTARDI), A., i, 641.
- 3:4-dichloro-, azo-dye from (BADMISCHE ANILIN- & SODA-FABRIK), A., i, 121.
- 3:4:6-trichloro-, azo-dyes from (BADISCHE ANILIN- & SODA-FABRIK), A., i, 322.
- o*-, *m*-, and *p*-nitro-, relation between the absorption spectra and chemical constitution of (BALY, EDWARDS, and STEWART), T., 514; P., 35. relative rates of oxidation of (BRADSHAW), A., i, 360. condensation of, with *p*-nitrosobenzaldehyde (ALWAY and GORTNER), A., i, 994.
- 2:4-dinitro-, *N*-derivatives, crystalline forms of (JAEGER), A., i, 649.
- Aniline, 2:4-dinitro-, alkyl derivatives, synthesis of** (MULDER), A., i, 491.
- thio-, sulphonation of (SCHMIDT), A., i, 243.
- Aniline-3:6-disulphonic acid** (SCHULTZ), A., i, 837.
- Aniline dyes**, toxicity of (BOKORNY), A., ii, 297.
- Aniline-2-sulphonic acid**, 4:5-dichloro-, and its salts, preparation of (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 825.
- Aniline-3-sulphonic acid**, 2:4:6-*tri*bromo- and *di*bromohydroxy-, diazotised, compounds of, with β -naphthol (NOELTING and BATTEGAY), A., i, 222.
- 2:5:6-*tri*chloro-, and its salts (NOELTING and BATTEGAY), A., i, 221.
- Aniline-4-sulphonic acid**, *o*-mono- and 2:5-*di*-chloro-, and *o*-nitro-, diazotised, compounds of, with β -naphthol (NOELTING and BATTEGAY), A., i, 222.
- Anilinesulphonic acids**, acylation of (SCHROETER and RÖSING), A., i, 415.
- 2-Anilino-1:4-anthraquinone-4-anil** (LAGODZINSKI), A., i, 294.
- m-Anilinoazo-*m*-toluidine**, azo-dye from (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 466.
- 2-Anilinobenzenophenone**, 5-nitro- (ULLMANN and ERNST), A., i, 205.
- 3:5-dinitro-, 3:5-dinitro-*p*-amino-, and 3:5-dinitro-*o*-hydroxy- (ULLMANN and BROIDO), A., i, 189.
- 4-Anilino-1-benzylphthalazine** (LIECK), A., i, 50.
- Anilinodibenzoylmethane** and its nitroso-amine (WIELAND and BLOCH), A., i, 466.
- 3-Anilino-1:1-dimethyl- $\Delta^{3:5}$ -dihydro-benzene**, *m*- and *p*-amino-5-hydroxy-, and their additive salts and acetyl derivatives (HAAS), T., 389; P., 63.
- 5-hydroxy-, and its hydrochloride and acetyl derivative (HAAS), T., 202.
- 3-Anilino-1:1-dimethyl- Δ^3 -cyclohexenone-5**. See 5-Keto-3-anilino-1:1-dimethyl- Δ^3 -tetrahydrobenzene.
- Anilinodiphenyl-benzyl- and -methylguanidines** (BUSCH and MEHRTENS) A., i, 116.
- 3-Anilino-1:4-diphenyl-4:5-dihydro-1:2:4 triazole** and its 5-methyl derivative (BUSCH and MEHRTENS), A., i, 115.
- Anilinodiphenylguanidine**, *p*-mono- and *di*-chloro-, and their hydrochlorides (BUSCH and BRANDT), A., i, 465.

- 6-Anilino-2-ethylthiolpyrimidine**, 5-iodo, and its sulphate (JOHNSON and JOHNS), A., i, 456.
- 2-Anilino-4'-methoxybenzophenone**, 5-nitro- (ULLMANN and ERNST), A., i, 206.
- 6-Anilinomethyl-2-phenyldihydroiso-indole** and its hydrobromide (CIUSA), A., i, 942.
- Anilinonaphthacenequinone** (ORCHARDSON and WEIZMANN), T., 118.
- Anilino-1:4-naphthaquinoneanil** (v. EULER), A., i, 369; (A. and H. v. EULER), A., i, 370.
- 2-Anilino- α -naphthol.** See 1:2-Naphthaquinolam.
- 4-Anilino-6-nitro- m -tolinic acid**, *op-di*-nitro- (ERREIRA and MALTESE), A., i, 85.
- 1-Anilino-8-phenoxyanthraquinone** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 519.
- α -Anilinophenylacetoneitrile**, *p*-hydroxy-, and its amide (BUCHERER and GROLEÉ), A., i, 350.
- Anilinophenyliminoalloxanic acid** (KÜHLING and KASELITZ), A., i, 463.
- 3-Anilino-5-phenylimino-1:1-dimethyl-tetrahydrobenzene** and its additive salts and acetyl derivative (HAAS), T., 203.
- m*-amino-, and its resorcylate (HAAS), T., 393; P., 63.
- β -Anilino- β -phenyl- α -lactic acids**, isomeric (ERLENMEYER and BARKOW), A., i, 237.
- 4-Anilino-1-phenylphthalazine** (LIECK), A., i, 51.
- 3-Anilino-1:4- and -4:1 phenyl-*p*-tolyl-4:5-dihydro-1:2:4-triazoles** (BUSCH and MEHRTENS), A., i, 118.
- Anilinophenyl-*p*-tolylguanidine** (BUSCH and MEHRTENS), A., i, 118.
- 3-Anilino-1:4:5-triphenyl-4:5 dihydro-1:2:4-triazole** (BUSCH and MEHRTENS), A., i, 117.
- Anilypyrophthalone** (EIBNER and LÖBERING), A., i, 701.
- Anilthiouret** (FROMM and SCHNEIDER), A., i, 714.
- Animal bioplasm**, use of soluble Prussian blue for investigating the reducing power of (HARRIS and MOODIE; HARRIS and IRVINE), A., ii, 784.
- gelatins (SADIKOFF), A., i, 224, 777.
- membranes, filtration through (HERTZ), A., ii, 686.
- metabolism. See under Metabolism.
- organism. See Organism.
- textile fibres, process of dyeing (GELMO and SUIDA), A., i, 445.
- tissues. See Tissues.
- Animals**, effects of choline on (BUZZARD and ALLEN), A., ii, 41.
- fresh-water, toxicity of sea water for (OSTWALD), A., ii, 112.
- marine, composition of body fluids in (BAGLIONI), A., ii, 869.
- non-carnivorous, importance of asparagine and lactic acid for the feeding of (KELLNER), A., ii, 193.
- normal and infected, distribution of salicylic acid in (BONDI and JACOBY), A., ii, 106.
- young, influence of chloroform on the growth of (SCHAPIRO), A., ii, 180.
- Anions.** See under Electrochemistry.
- Anisaldehyde**, electrolytic reduction of (LAW), T., 1515, 1525; P., 237.
- Anisaldoxime peroxide** (PONZIO and BUSTI), A., i, 855.
- α -Anisidine**, imide from (ORLOFF) A., i, 420.
- m -Anisidine**, 4:5-dinitro-, and its diazotisation (MELDOLA and STEPHENS), T., 927; P., 158.
- p -Anisidine**, *N*-acetyl derivative, nitration of (REVERDIN and BUCKY), A., i, 749.
- α -Anisidine-*p*-sulphonic acid** and its diazotisation (GNEHM and KNECHT), A., i, 835.
- Anisildioxime, peroxide** (PONZIO), A., i, 735.
- Anisoin**, electrolytic oxidation of (LAW), T., 1447; P., 197.
- electrolytic reduction of (LAW), T., 1517, 1526; P., 237.
- Anisole**, 4-chloro-2-nitro-, preparation of (OEHLER), A., i, 256.
- halogen-nitro-derivatives of (REVERDIN and PHILIPP), A., i, 16.
- i*odoso- and *p*-iodoxy-compounds of, and iododichloride (LIEBRECHT), A., i, 257.
- isomeric dinitro-, constitution of (VERMEULEN), A., i, 256.
- m*-thio- (MAUTHNER), A., i, 949.
- Anisole-4-diazobis-4-dimethylaminobenzaldoxime** (BRESLER, FRIEDEMANN, and MAI), A., i, 322.
- Anisole-*p*-sulphonic acid**, *o*-nitro-, salts, methyl ester, amide, and chloride (GNEHM and KNECHT), A., i, 835.
- 3-Anisyl-1-anisylideneindene** and α -hydroxy- (THIELE and BÜHNER), A., i, 570.
- Anisylbenzylideneindene** (THIELE and BÜHNER), A., i, 571.
- p -Anisyl butyl ketone** and its semicarbazone (LAYRAUD), A., i, 433.
- Anisyl-4-diazobisacetoxime** (BRESLER, FRIEDEMANN, and MAI), A., i, 322.

- Anisylfluorene** (THIELE and HENLE), A., i, 572.
- Anisyl-fulvene and α -hydroxy-*p*-methoxybenzylfulvene** (THIELE and BALHORN), A., i, 640.
- Anisylideneacetophenone** dibromide and its alkylxy- and hydroxy-derivatives (WERNER, SCHORNDORFF, and CHOROWER), A., i, 181.
- Anisylideneanthrone** (HALLER and PADOVA), A., i, 24.
- Anisylidenebisphenylmethylpyrazolone** (BETTI and MUNDICI), A., i, 544.
- Anisylidenefluorene** (THIELE and HENLE), A., i, 572.
- 1-Anisylideneindene and 3-Anisylidene-1-methylindene** (THIELE and BÜHNER), A., i, 570.
- 1-Anisylidene** (THIELE and BÜHNER), A., i, 570.
- β Anisyl- α -methylglycidic acid**, ethyl ester (DARZENS), A., i, 137.
- Anisylidinitromethane** and its metallic derivatives (PONZIO), A., i, 735.
- Anisyltrimethylammonium iodide** (WEDEKIND and FRÖHLICH), A., i, 162.
- Ankerite** from the Sylvester mine, Vosges, Alsace (UNGEMACH), A., ii, 766.
- Annual General Meeting**, T., 735; P., 93.
- Anodes.** See under Electrochemistry.
- Anthocyanin**, formation of, under the influence of the bite of an insect (MIRANDE; GAUTIER), A., ii, 884. formation of, in barley stems (SUZUKI), A., ii, 884.
- Anthracene**, photoelectric behaviour of (POCHETTINO), A., ii, 417, 722. derivatives, conversion of, into azines and dihydroazines (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 707. γ -substituted (GUYOT and STAELING), A., i, 17. mesophenyl derivatives of (LIEBERMANN and LINDENBAUM), A., i, 24.
- Anthracene**, 1- and 2-hydroxy-. See Anthrholts. 9-hydroxy-. See Anthranol. 2:3-dihydroxy-, and its diacetyl derivative (LAGODZINSKI), A., i, 82.
- Anthracene-1-carboxylic chloride** and amide and -1-nitrile (DIENEL), A., i, 291.
- Anthracene dyes**, blue and green (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 293.
- Anthracene series**, bluish-green colouring matters of the (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 867.
- isoAnthraflavic acid** and its methyl ester (NOELTING and WORTMANN), A., i, 292.
- Anthranilic acid** (*o*-aminobenzoic acid) and its methyl derivatives and esters, affinity constants of (CUMMING), A., ii, 734; (WALKER), A., ii, 785. alkylation and arylation of (HOUBEN), A., i, 845. condensation of, with ethyl benzoylacetate (v. NIEMENTOWSKI), A., i, 38.
- alkamine esters, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 845.
- N-alkylated alkamine esters**, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 846.
- Anthranilic acid**, 5-bromo-, and its *N*-acetyl derivative and their salts and nitrile (BOGERT and HAND), A., i, 176. and its derivatives, preparation of 6-bromo-4-ketodihydroquinazolines from (BOGERT and HAND), A., i, 208.
- Anthranilo-anthranilic acid** (MEYER), A., i, 432.
- Anthranol**, condensation with, and its benzoyl derivative (PADova), A., i, 741. benzylidene derivatives of (HALLER and PADOVA), A., i, 24.
- 1:2-Antraphenazine** and its additive salts (LAGODZINSKI), A., i, 98.
- Anthrapurpurin**, methyl ethers of (GRAEBE and BERNHARD), A., i, 865.
- Anthrapurpurinimides** (PRUD'HOMME), A., i, 194.
- 1:2-Antraquinol** and its diacetyl derivative (LAGODZINSKI), A., i, 99.
- Anthraquinone**, new derivative of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 678. preparation of derivatives of the reduction products of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 862. derivatives, preparation of pyrazoles from (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 904.
- Anthraquinone**, 1-amino-, oxamic acid of, and 1:5-diamino-, dioxamic acid of (NOELTING and WORTMANN), A., i, 292. mono- and di-amino-derivatives, chlorination of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 99.
- 1:4-, 1:5-, 1:8-, and 2:7-diamino-, and their diacyl derivatives and 1:4:5:8-tetra-amino- and its additive derivatives (NOELTING and WORTMANN), A., i, 291.

- Anthraquinone**, 1-amino-2-hydroxy-, and its triacetyl derivative (LAGODZINSKI), A., i, 98.
- 1:3-dibromo-2-amino-, conversion of, into an azine and a dihydroazine (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 707.
- 1-chloro-2-hydroxy-, and its acetyl derivative (DECKER and LAUBE), A., i, 192.
- hydroxy-derivatives, methylation of (GRAEBE), A., i, 863.
- reduction products of (PRUD'HOMME), A., i, 193, 866.
- α -hydroxy-derivatives, preparation of *p*-nitro-derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 868.
- 1-hydroxy-. See Erythroxyanthraquinone.
- 2-hydroxy-, methyl ether of (GRAEBE and BERNHARD), A., i, 865.
- 1:2-dihydroxy-. See Alizarin.
- 1:3-dihydroxy-. See Purpuroanthin.
- 1:4-dihydroxy-. See Quinizarin.
- 1:5-dihydroxy-. See Anthrarufin.
- 1:8-dihydroxy-. See Chrysazin.
- 2:3-dihydroxy-. See Hystazarin.
- 2:7-dihydroxy-. See *iso*Anthraflavie acid.
- 1:2:4-trihydroxy-. See Purpurin.
- 1:2:5-trihydroxy-. See Anthrarufin, hydroxy-.
- 1:2:6-trihydroxy-. See Flavopurpurin.
- 1:2:7-trihydroxy-. See Anthrapurpurin.
- 1:2:8-trihydroxy-. See Chrysazin, hydroxy-.
- 1:4:8-trihydroxy-, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 294.
- nitroamino-derivatives, carbamates of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 677.
- polynitroamino*-, and their urethanes, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 863.
- 1:2-Anthraquinone** (LAGODZINSKI), A., i, 98.
- compounds of, with aniline (LAGODZINSKI), A., i, 293.
- 1:4-Anthraquinone** (DIENEL), A., i, 290; (LAGODZINSKI), A., i, 439; (LIEBERMANN), A., i, 594; (HASLINGER), A., i, 967.
- 2-hydroxy-, and its salts, acetyl derivative, and 4-anil (LAGODZINSKI), A., i, 293.
- Anthraquinones**, amino-, and their alkyl and aryl derivatives, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 519.
- Anthraquinone-1-carboxylamide and -1-nitrile** (DIENEL), A., i, 291.
- Anthraquinone-di- and tri-sulphonic acids**, preparation of (WEDEKIND & Co.), A., i, 677.
- Anthraquinoneimide**, 2-amino-1-hydroxy-, and its acetyl and potassium derivatives (SCHOLL and PARTHEY), A., i, 440.
- Anthraquinonequinoline**, Graebe's, isomeride of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 889.
- Anthraquinone series**, azines of the (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 905.
- Anthraquinonesulphonic acid**, dihydroxy- (WEDEKIND & Co.), A., i, 677.
- 1:2:5-trihydroxy- (GRAEBE), A., i, 863.
- Anthraquinone-3-sulphonic acid**, 4-amino-1:2-dihydroxy-. See Alizarin-3-sulphonic acid, α -amino-.
- Anthraquinone- α -sulphonic acids** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 677.
- Anthraquinonesulphonic acids**, amino-azo-dyes from (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 323.
- aminohydroxy-, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 293.
- hydroxy-, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 866.
- polyhydroxy*-, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 519.
- Anthrarufin**, *p-mono-* and *p-di*-chloro-, preparation of (WEDEKIND & Co.), A., i, 678.
- hydroxy-, ethers of (GRAEBE and THODE), A., i, 863.
- p*-dinitro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 868.
- Anthrarufindisulphonic acid**, *dinitro*-, reduction products of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 867.
- Anthrax serum**, the active constituent of (ASCOLI), A., ii, 687.
- 1:2:1':2'-Anthrazine**, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 868.
- 1-Anthrol**, 2-amino-, and its triacetyl derivative, 2-nitroso-, and its ethers and potassium salt, and 4-nitroso-, and its salts (DIENEL), A., i, 290.
- 4-amino- (LAGODZINSKI), A., i, 439.
- 2-Anthrol**, 1-amino-, and its acetyl derivatives and salts, and 1-nitroso-, and its metallic salts and ethers (LAGODZINSKI), A., i, 98.

- Anthrone**, benzylidene derivatives of (HALLER and PADOVA), A., i, 24.
trihydroxy-, and its monoethyl ether (GRAEBE and THODE), A., i, 865.
- Antifebrin**, action of Nessler's solution on (RAIKOW and KÜLÜMOW), A., i, 112.
- Antimonichlorides**. See under Antimony organic compounds.
- Antimony**, properties of (CHRÉTIEN and GUINCHANT), A., ii, 366.
 modifications of (STOCK and SIEBERT), A., ii, 34.
 spectra of, in a Geissler tube (HERPERTZ), A., ii, 821.
 cryoscopic constant of (PÉLABON), A., ii, 173.
- Antimony alloys** with aluminium (TAMMANN), A., ii, 88.
 with cadmium (TREITSCHKE), A., ii, 763.
 with gold (VOGEL), A., ii, 679.
 with magnesium (GRUBE), A., ii, 355.
 with nickel (LOSSEW), A., ii, 361.
 with silver (PETRENKO), A., ii, 667.
 with sodium (MATHEWSON), A., ii, 666.
 with thallium (WILLIAMS), A., ii, 673.
 with tin (GALLAGHER), A., ii, 367.
 with zinc (SCHEMTSCHUSCHNY), A., ii, 448, 549.
- Antimony compounds** with selenium and tellurium (PÉLABON), A., ii, 173; (CHRÉTIEN), A., ii, 550.
- Antimony pentachloride**, action of nitrogen sulphide on (DAVIS), T., 1577; P., 261.
 compound of, with chromium chloride, constitution of (PFEIFFER and TAPUACH), A., i, 628.
- oxide, preparation of, from antimony sulphide (METZL), A., ii, 234.
- selenide, reduction of (CHRÉTIEN), A., ii, 550.
- sulphate and its double salts with alkali sulphates (METZL), A., ii, 174.
- sulphide (CHRÉTIEN and GUINCHANT), A., ii, 366.
- Antimony organic compounds** :—
- Antimonichlorides**, organic (PFEIFFER and TAPUACH), A., i, 628.
- Stibines**, preparation of, by Grignard's reaction (HIBBERT), A., i, 153.
- Antimony**, modified Bettendorf's reagent for the detection of (FERRARO and CAROBIO), A., ii, 490.
- rapid electrolytic precipitation of (LANGNESS and SMITH), A., ii, 253.
- Antimony**, estimation of, volumetrically, in Babbitt and type metals (YOCKEY), A., ii, 581, 908.
- estimation of, in vulcanised india-rubber (WAGNER), A., ii, 583.
- estimation of, in ores (SCHÄFER), A., ii, 394.
- separation of, from copper (PUSHIN and TRECHZINSKY), A., ii, 199.
- new method of separating tin from (CZERWEK), A., ii, 708.
- Antipyretic**, camphenal as an (HOUGHTON), A., ii, 188, 379.
- p*-ethoxyphenylcamphorylimide as an (HOUGHTON), A., ii, 188.
- Antipyretic action** of isosuccinic acid derivatives of aniline, *p*-toluidine, and *p*-aminophenol (MALERBA), A., ii, 693.
- Antipyrine** (*1-phenyl-2:3-dimethylpyrazolone*), action of Nessler's solution on (RAIKOW and KÜLÜMOW), A., i, 112.
 excretion of (JONESCU), A., ii, 565.
 new additive compounds of (GARELLI and BARBIERI), A., i, 985.
- benzeneazo-derivatives of (MICHAELIS and SCHLECHT), A., i, 614.
- and its derivatives, isonitroso-reaction of (SPERLING), A., ii, 406.
- Antipyrine**, 4-amino-, synthetical bases from (LUFT), A., i, 118.
 thio-. See Thiopyrine.
- Antipyrines**, preparation of *s*-secondary hydrazines from (KNORR), A., i, 893.
- Antipyreneurethaneacetamide** (A. and L. LUMIÈRE and BARBIER), A., i, 245.
- 1-Antipyrylpiperidine** and its additive salts (LUFT), A., i, 119.
- 1-Antipyryltetrahydro-1:4-oxazine** (*anti-pyrylmorpholine*) and its additive salts (LUFT), A., i, 119.
- Anti-rennin** in the serum of fishes and invertebrates (SELLIER), A., ii, 292.
- Antiseptic**, stable 3 per cent. hydrogen peroxide as an (SCHMIDT), A., ii, 698.
- Antiseptic properties** of the gases produced by burning sugar (TRILLAT), A., ii, 384.
- Antitoxin**, concentration of, for therapeutic uses (GIBSON), A., ii, 110.
- Antitrypsin** and trypsin (HEDIN), A., ii, 780.
- Apiolaldoxime** (RIMINI and OLIVARI), A., i, 760.
- isoApiole*, β -nitro-derivatives and nitro-site (RIMINI and OLIVARI), A., i, 759.
- Apiose** and its phenylbenzylhydrazone (VONGERICHTEN and MÜLLER), A., i, 143.

- Apnea** and carbon dioxide in the inspired air (WEIL), A., ii, 460.
- Apo-compounds**, organic. See under word to which *apo-* is affixed.
- Apple marc** (BIGELOW and GORE), A., ii, 300.
- L-Arabinose**, alkylation of (PURDIE and ROSE), T., 1204; P., 201.
- i-Arabinoketose**, formation of, from formaldehyde (H. and A. v. EULER), A., i, 142, 143.
- Aragotite** from California (HANKS), A., ii, 456.
- Arbacia eggs.** See under Eggs.
- Arbutin**, reactions of (REICHARD), A., ii, 818.
- Arc.** See Electric arc under Electrochemistry.
- Argemone seeds**, fatty oil from (BLOEMENDAL), A., ii, 482.
- Arginine** methyl ester and its salts (FISCHER and SUZUKI), A., i, 73.
- Argon** and helium, occurrence of, in malacone (KITCHIN and WINTERSON), T., 1568; P., 251.
- presence of, in thermal springs (MOUREV), A., ii, 442.
- chemical behaviour of (COOKE), A., ii, 539.
- isothermal distillation of oxygen and (INGLIS), A., ii, 332.
- mixtures of, with helium, coefficient of internal friction of (TÄNZLER), A., ii, 728.
- and helium, comparative observations on the evolution of gas from the cathode in (SKINNER), A., ii, 824.
- Aristols** (*iodized thymols*), estimation of iodine in (CORMIMBOUF), A., ii, 122.
- Arnidiene** (KLOBB), A., i, 843.
- Arnidiol** phenylurethane, reactions of (KLOBB), A., i, 843.
- Aromatic compounds**, action of sulphur dioxide and aluminium chloride on (SMILES and LE ROSSIGNOL), P., 158.
- Aromatic nuclei**, influence of the added substance on substitution in (HOLLMAN), A., i, 412.
- Arsenic**, occurrence of, in wines (GIBBS and JAMES), A., ii, 197.
- in "pure glycerins" (GALIMARD and VERDIER), A., ii, 306.
- allotropic form of (THOMSON), A., ii, 745.
- spectra of, in a Geissler tube (HERPERTZ), A., ii, 821.
- possibility of accumulating, in the fruits of certain plants (GOSIO), A., ii, 624.
- Arsenic alloys** with copper (FRIEDRICH), A., ii, 29.
- with lead (FRIEDRICH), A., ii, 230.
- Arsenic alloys** with silver (FRIEDRICH and LEROUX), A., ii, 283.
- with zinc (FRIEDRICH and LEROUX), A., ii, 671.
- Arsenic compounds** with sulphur, synthesis of, and their melting point and transformation curves (BORODOWSKI), A., ii, 665.
- Arsenic pentafluoride** (RUFF, GRAF, and HELLER), A., ii, 160.
- trihydride (*arsine*), reactions and estimation of (RECKLEBEN and LOCKEMANN), A., ii, 251.
- Arsenious oxide** (*arsenious anhydride*), acetyl and benzoyl derivatives of (PICTET and BON), A., i, 3.
- estimation of (CASPARI and SUPPAN), A., ii, 50.
- Arsenic acid**, estimation of (ROSENTHALER), A., ii, 801.
- Arsenious acid**, rate of the reaction between iodine and, in acid solution; rate of the reverse reaction; and the equilibrium between them (ROEBUCK), A., ii, 76.
- Arsenic organic compounds** (AUGER), A., i, 488.
- Arsines**, preparation of, by Grignard's reaction (HIBBERT), A., i, 153.
- secondary (DEHN and WILCOX), A., i, 150.
- Arsonic and Arsinic acids** (DEHN and MCGRATH), A., i, 341.
- Arsenic**, modified Bettendorf's reagent for the detection of (FERRARO and CAROBbio), A., ii, 490.
- the Gutzeit test for (GOODE and PERKIN), A., ii, 629.
- removal of, from hydrochloric acid for use in the Marsh-Berzelius method (LING and RENDLE), A., ii, 250.
- use of platinum and copper as "accelerators" in Marsh's test for (DE VAMOSSY), A., ii, 196.
- estimation of, by Marsh's method (BERTRAND and DE VAMOSSY; GAUTIER), A., ii, 393.
- estimation of traces of, by the Marsh-Berzelius method, and the "insensitiveness" of zinc (CHAPMAN and LAW), A., ii, 196.
- estimation of, when in small quantities (THOMSON), A., ii, 801.
- estimation of the amount of, in the arsenic mirror (BERNTROP), A., ii, 706.
- estimation of, in ores (SCHÄFER), A., ii, 394.
- estimation of minute quantities of, in sulphuric acid (BISHOP), A., ii, 306.

- Arsenic**, estimation of, in organic substances (TARUGI and BIGAZZI), A., ii, 629.
estimation of, electrolytically, in wall-papers, fabrics, &c. (THORPE), T., 408; P., 73.
- Arsenic group**, rapid method of estimating the metals of the, exclusive of gold or platinum (MATERNE), A., ii, 807.
- Arsenical pyrites**. See Mispickel.
- Arsine and Arsonic and Arsinic acids**. See under Arsenic.
- Arylacylaminoanthraphthalosulphonic acids**, amino-, preparation of (GESELLSCHAFT FÜR CHEMISCHE INDUSTRIE IN BASEL), A., i, 659.
- Arylamines**, influence of substituents in trinitrobenzene on its formation of additive compounds with (SUDBOROUGH and PICTON), T., 583; P., 84.
- Aryl-p-diaminoanthraquinonesulphonic acids**, alkylated, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 968.
- Arylanthranilic acids**, preparation of (GOLDBERG & ULLMANN), A., i, 953.
- Arylcarbithionic acids** (HOUBEN and POHL), A., i, 847.
- Arylglycines**, nitriles of (BUCHERER and GROLÉE), A., i, 349.
- Arylhantoinas** (FRIERICHSEN and HOLL-MANN), A., i, 207.
- 2-Arylimino-5:5-dialkylbarbituric acids**, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 987.
- Arylsulphonamides**, nitration of (AKTIEN-GESELLSCHAFT FÜR ANILINFABRIKATION), A., i, 736.
- Arylsulphonyl-m-diamines**, action of nitrous acid on (MORGAN, MICKLETHWAIT, and COUZENS), T., 1289; P., 239.
- Asarone**, action of mercuric acetate on (BALBIANO and CIRELLI), A., i, 186.
derivatives (SZÉKI), A., i, 660.
- Asaryl aldehyde**, action of magnesium organic compounds on (FABINYI and SZÉKI), A., i, 424.
condensation products of (FABINYI and SZÉKI), A., i, 422.
- Asbestiform mineral** from Mexico (VILLARELLO), A., ii, 774.
- Ascitic fluid** containing albumin soluble in acetic acid (BRETET), A., ii, 875.
- Asparagine**, action of, on nitrogenous metabolism (LEHMANN and ROSEN-FELD), A., ii, 560.
proteid-sparing action of (MÜLLER), A., ii, 465.
- i-Aspartic acid**, esterification of (WEGSCHEIDER and FRANKL), A., i, 727.
- Aspergillus niger**, culture researches with, with amino-acids and peptides (ABDERHALDEN and TERUUCHI), A., ii, 479.
- formation of acid and alkali in artificial culture media of (KOHN and CZAPEK), A., ii, 790.
- formation of oxalic acid by (WEHMER), A., ii, 191.
- the iodide reaction of (RACIBORSKI), A., ii, 700.
- Assimilation**, thermochemical theory of (FISCHER), A., ii, 792.
- Association factors**. See under Affinity, chemical.
- Atmospheric air**, chemical and geological history of (STEVENSON), A., ii, 156.
- apparatus for the liquefaction of (CLAUDE), A., ii, 16, 17.
- liquefaction of, by expansion with performance of external work (CLAUDE), A., ii, 844.
- spontaneous ionisation of (GEITEL), A., ii, 329, 518.
- conductivity of, in contact with autoxidising substances (JORISSEN and RINGER), A., ii, 518.
- cause of the conductivity of, which has been in contact with phosphorus (SCHENCK, MIHR, and BANTHIEN), A., ii, 326.
- oxidising power of, on a mixture of potassium iodide and arsenite at various points on Mt. Blanc (LESPIEAU), A., ii, 741.
- solubility of, in sulphuric acid (TOWER), A., ii, 743.
- sterilisation of, by means of ozone (LABBÉ), A., ii, 479.
- and coal-gas, explosive mixtures of (HÄUSER), A., ii, 441.
- explosions of (HOPKINSON), A., ii, 440.
- separation of pure oxygen and nitrogen from (CLAUDE), A., ii, 16.
- abstraction of oxygen from, by iron (SMYTH), A., ii, 35.
- preparation of nitrogen from (HULETT), A., ii, 18.
- estimation of carbon monoxide in (JAUBERT; GAUTIER), A., ii, 125; (LÉVY and PÉCOUL), A., ii, 197.
- Atom**, determination of the number of corpuscles in an (THOMSON), A., ii, 431.
- Atomic theory**, a development of the, which correlates chemical and crystalline structure and leads to a demonstration of the nature of valency (BARLOW and POPE), T., 1675; P., 264.

- Atomic weight** of bismuth (GUTBIER, BIRCKENBACH, and MEHLER), A., ii, 92; (HINRICHES), A., ii, 367.
 of bromine (BAXTER), A., ii, 740.
 of cadmium (BAXTER, HINES, and FREVERT), A., ii, 541.
 of cobalt (BAXTER and COFFIN), A., ii, 858.
 of copper (MURMANN), A., ii, 613.
 of dysprosium (URBAIN and DEMENITROUX), A., ii, 855.
 of nitrogen (GUYE and DAVILA), A., ii, 20; (GUYE), A., ii, 349.
 possible source of error in Stas' determination of the (GRAY), T., 1173; P., 197.
 of nitrogen and silver (GUYE), A., ii, 19.
 of potassium (RICHARDS and STÄHLER), A., ii, 848.
 of the rare earth metals (BRILL), A., ii, 27; (MATIGNON), A., ii, 232; (FEIT and PRZIBYLLA), A., ii, 754.
 of silver (GUYE and TER-GAZARIAN), A., ii, 750.
 of strontium (RICHARDS), A., ii, 26.
 of tantalum (HINRICHSEN and SAHLBOM), A., ii, 763.
 of tellurium (GUTBIER and WAGENKNECHT), A., ii, 81; (GUTBIER and GOSSNER), A., ii, 436.
 of terbium (URBAIN), A., ii, 361; (HINRICHES), A., ii, 450.
- Atomic weights**, report of the International Committee on, P., 2.
 periodic relation between, and index of refraction (BISHOP), A.; ii, 137.
 of all chemical elements are commensurable and matter is uniform (HINRICHES), A., ii, 661.
 table of, P., 8.
- Atoms**, relation between the volumes of, of certain compounds at their melting points and their valencies (LE BAS), P., 322.
- Atropine sulphate**, toxicity of (BERTOZZI), A., ii, 475.
- Auer mantles**. See under Mantles.
- Auric, Aurous, and Auryl** compounds. See under Gold.
- Aurin**, new method of preparing (RUDOLF), A., i, 361.
- Auxochromes**, distribution of, in the molecule (KAUFFMANN and FRANCK), A., i, 841.
- Auxofluors**, definition of term (FRANCESCO and BARGELLINI), A., ii, 714.
- Axinite** from Australia (ANDERSON), A., ii, 768.
- Azidoxazine and its carboxylic acids**. See Glyoxime peroxide and its carboxylic acids.
- Azelaic acid**, *αα-diamino*-, synthesis of, and its salts and ethyl ester (NEUBERG and FEDERER), A., i, 805.
- Azelaic acid**, half aldehyde, semicarbazone of (HARRIES and THIEME), A., i, 227.
- Azimino-compounds** from aromatic *p*-diamines (MORGAN and MICKLETHWAIT), A., i, 911.
- Azines** of the anthraquinone series, preparation of (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 905.
- o-Azoacetanilide** (v. NIEMENTOWSKI), A., i, 319.
- Azobenzene**dehydesulphonic acid, potassium salt (GREEN and CROSLAND), T., 1606; P., 257.
- Azobenzene**, velocity of electrolytic reduction of (FARUP), A., ii, 153.
- Azo-compounds**, synthesis of, by means of trinitroacetylaminophenol (MELDOLA), T., 1943.
- decomposition of, by sodium hyposulphite (GRANDMOUGIN), A., i, 716.
- behaviour of certain, towards hydrogen chloride (BUSCH and BRANDT), A., i, 465.
- mixed (EIBNER and LAUE), A., i, 613.
- Azo-compounds**, amino-, influence of substitution on the formation of (MORGAN and CLAYTON), T., 1054; P., 174.
- o*-carboxylic, transformation of, into 3-hydroxyindazyl derivatives (FREUNDLER), A., i, 544.
- hydroxy-, isomerism among (PUXEDDU), A., i, 774.
- o*-hydroxy-, constitution of so-called (ODDO and PUXEDDU), A., i, 991.
- p*-hydroxy-, relation between quinone-hydrazone and (BORSCHE and KÜHL), A., i, 319.
- nitro-, reduction of (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRICATION), A., i, 717.
- See also Polyazo-compounds.
- Azocyanamides**, aromatic (PIERRON), A., i, 772.
- Azo-derivatives** of aromatic hydroxy-acids, reduction of, by phenylhydrazine (PUXEDDU), A., i, 995.
- 4':4' Azodiphenyl**, 4:4'-diamino-, and its *s*-diacetyl derivative and additive salts (WILLSTÄTTER and KALB), A., i, 996.
- 2':2' Azodiphenylmethane**, 4:4'-diamino-, reduction of (DUVAL), A., i, 314.
- Azo-dyes**, $C_{12}H_9O_4N_3$ and $C_{18}H_{13}O_4N_5$, from 2-nitroresorcinol and diazo-benzene chloride (KAUFFMANN and DE PAY), A., i, 169.

- Azo-dyes** from aminoanthraquinone-sulphonic acids (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 323.
 from *m*-aminobenzeneazo-*m*-toluidine (FARBEWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 466.
 from 3:4-dichloroaniline (BADISCHE ANILIN- & SODA-FABRIK), A., i, 121.
 from 3:4:6-trichloroaniline (BADISCHE ANILIN- & SODA-FABRIK), A., i, 322.
 from nitro-*m*-phenylenediaminesulphonic acid (BADISCHE ANILIN- & SODA-FABRIK), A., i, 322.
 of the pyridine series (BAUMERT), A., i, 909.
 general method of determining the constitution of (SCHMIDT), A., i, 52.
 combination of more than one molecule of a diazo- or bis-diazo-compound in the production of (VAUBEL and SCHEUER), A., i, 223.
 heat of combustion and constitutional formula of (LEMOULT), A., ii, 832.
Azo-dyes, o-hydroxy- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 121.
5-Azoeugenol, derivatives of (ODDO and PUXEDDU), A., i, 991.
5-Azooeugenols (PUXEDDU), A., i, 774.
Azoinides of the benzidine series (VAUBEL and SCHEUER), A., i, 323.
Azophenols, o-, m-, and p-, isomerism among the (WILLSTÄTTER and BENZ), A., i, 990.
Azophenosafranine (as-phenosafranine) and its hydrochloride (BARBIER and SISLEY), A., i, 51, 989.
Azotobacter, chemical processes in the assimilation of elementary nitrogen by (STOKLASA, TRNKA, and VÍTEK), A., ii, 382.
Azotometer (RUPP), A., ii, 802.
Azoximes, preparation of (PONZIO and BUSTI), A., i, 855.
Azoxybenzene-4:4'-disazoformanilide (BÖRSCHE and KÜHL), A., i, 320.
p-Azoxobenzoic acid, esters (VORLÄNDER), A., i, 318.
p-Azoxobenzylideneacetophenone (VORLÄNDER), A., i, 318.
p-Azoxycinnamic acid, esters (VORLÄNDER), A., i, 318; (LEHMANN), A., ii, 430, 431.
Azoxy-compounds (VORLÄNDER), A., i, 317; (LEHMANN), A., ii, 430, 431; (ANGELI and MARCHETTI), A., i, 716.
Azure-blue in methyl alcohol, action of living microbes on a solution of (MARINO), A., ii, 189.

B.

- Babbit metal**, assay of (YOCKEY), A., ii, 581.
 volumetric estimation of antimony in (YOCKEY), A., ii, 581, 903.
Bacilli, action of living, on a solution of azure-blue in methyl alcohol (MARINO), A., ii, 189.
 poisonous action of formic acid on various (HENNEBERG), A., ii, 479.
 anaerobic putrefactive, importance of strictly, for the ripening of cheese (RODELLA), A., ii, 297.
 diphtheria and diphtheria-like, action of (GRAHAM-SMITH), A., ii, 693.
 tubercle, the wax of, in relation to their acid resistance (RITCHIE), A., ii, 190.
 typhoid, detection of, in drinking water by precipitation with ferric oxychloride (NIETER), A., ii, 383.
 typhoid and paratyphoid, and sera (BOYCOTT), A., ii, 110.
Bacillus, new pathogenic, isolated from an enlarged prostrate gland (DUNGEON), A., ii, 693.
cloacæ, liquefaction of gelatin by (MACCONKEY), A., ii, 113.
coli communis, chemistry of the (LEACH), A., ii, 568.
enteridis of Gärtnner, toxin of the (CATHCART), A., ii, 297.
lactis aerogenes, action of, on dextrose and mannitol (HARDEN and WALLEY), A., ii, 380.
typhosus simulans (McNAUGHT), A., ii, 190.
riparius acetonicus (BRÉAUDAT), A., ii, 568.
Backhousia citriodora from Queensland, oil of, A., i, 297.
Bacteria in the acetic acid factory (HENNEBERG), A., ii, 475.
 in milk (MACCONKEY), A., ii, 699.
 in milk and in water, influence of carbon dioxide under high pressure on (HOFFMANN), A., ii, 695.
 of "blown" tins of preserved food (CATHCART), A., ii, 699.
 apparatus for the cultivation of, with high oxygen concentration and for the determination of the oxygen maxima of the bacteria, and the periods at which they are killed at higher oxygen concentrations (MEYER), A., ii, 475.
 methane as carbon-food and source of energy for (SÖHNGEN), A., ii, 42.
 energy-metabolism in certain (RUBNER), A., ii, 568.

Bacteria, destruction of, by light (THIELE and WOLF), A., ii, 567.
 agglutination of (DREYER and JEX-BLAKE), A., ii, 98.
 action of, on pepsin (PAPASOTIRIOU), A., ii, 691.
 action of sodium phenylpropiolate on (KOZAI), A., ii, 380.
 decomposition of oblitine by (KUTSCHER), A., ii, 697.
 oxidation of hydrogen and methane by (KASERER), A., ii, 113, 697.
 aërobic, behaviour of, towards complete withdrawal of oxygen (WILIMSKY), A., ii, 113.
 anaërobic nitrogen-absorbing (HASELHOFF and BREDEMANN), A., ii, 698.
 denitrifying, formation of crystals in cultures of (HUTCHINSON), A., ii, 477.
 faecal, gas production by, on sugar bouillon (HERTER and WARD), A., ii, 381.
 production of methyl mercaptan by, in p-ctone bouillon (HERTER), A., ii, 378.
 lactic acid, vitality and activity of technical (WEHMER), A., ii, 879.
 nitrifying, peat as a medium for the production of (MÜNTZ and LAINÉ), A., ii, 476.
 oligonitrophilous and mesonitrophilous, in the soil of the Roman Campagna (PEROTTI), A., ii, 190.
 soil, utilisation of atmospheric nitrogen by (THIELE), A., ii, 114.
 See also Nitrification.
 quick-vinegar and wine vinegar (HENNEBERG), A., ii, 475, 568.
 Voges and Proskauer's reaction for certain (HARDEN), A., ii, 380.
 See also Bacilli, Bacillus, Micro-organisms, and Yeast.

Bacterial actions, influence of calcium and magnesium salts on certain (MACHIDA), A., ii, 380.
 growth and concentration of nutrition (RUBER), A., ii, 568.

Bactericidal action of stable 3 per cent. hydrogen peroxide (SCHMIDT), A., ii, 698.

Bacillus Plumeriana, fat of the kernels of (SACK), A., ii, 386.

Balance, modified Westphal, for solids and liquids (WILLIAMS), A., ii, 277.

Balances, chemical and assay, simple arrangement of lenses for reading the graduations of (HOLLOWAY), A., ii, 221.

Balance Sheets of the Chemical Society and of the Research Fund. See Annual General Meeting, T., 740.

Balanced reactions, new type of (SIMON), A., i, 404.

Balata (CASPARI), A., i, 100.

Ballistite, hydrolysis of (SILBERRAD and FARMER), T., 1772; P., 270.

Balsam, copaiba (Utz), A., ii, 504.
 from Surinam (VAN ITALLIE and NIEUWLAND), A., i, 596.
 See also Resins.

Banana, studies on the (BAILEY), A., ii, 385.

ψ -Baptisin and ψ -Baptigenin from *Baptisia tinctoria* (GORTER), A., i, 973.

Barbituric acid and its 5-alkyl derivatives, preparation of (CHEMISCHE FABRIK AUF AKTIEN VORM. E. SCHERING), A., i, 893.
 acidic constants of (WOOD), T., 1835.
 derivatives, preparation of (MERCK), A., i, 537, 715.

isoBarbituric acid, synthesis of (JOHNSON and MCCOLLUM), A., i, 704.

Barbituric acids, dämino-, substituted, preparation of (MERCK), A., i, 715.

Barium, diffusion of, in sedimentary rocks (COLLOT), A., ii, 39.
 new method of preparing (GUNTZ), A., ii, 87.
 preparation of pure, from its suboxide (GUNTZ), A., ii, 669.
 excretion of (MENDEL and SICHER), A., ii, 469.

Barium salts, relative solubility of certain sparingly soluble calcium salts and (FOOTE and MENGE), A., ii, 353.
 gelatinous (NEUBERG and NEIMANN), A., ii, 753.
 rapid and exact method of estimating (TARUGI and BIANCHI), A., ii, 627.

Barium borates (ATTERBERG), A., ii, 281.
 borates and bromo- and chloro-borates (OUVRARD), A., ii, 165.
 bromate, chlorate, and iodate, solubility of (TRAUTZ and ANSCHÜTZ), A., ii, 656.
 bromide and chloride, mixed crystals of (HERBETTE), A., i, 929; ii, 669.
 carbonate, dissociation of (FINKELSTEIN), A., ii, 354; (BOEKE), A., ii, 753.
 action of alkali bromides on (TAPONIER), A., ii, 540.
 carbonate and sulphate, equilibria between potassium chromate and (SCHOLTZ and ABEGO), A., ii, 602.
 ferrate, properties of (BASCHIERI), A., ii, 857.
 iodide, compounds of, with mercuric iodide (DUBOIN), A., ii, 359, 673.
 suboxide (GUNTZ), A., ii, 669.

- Barium** oxide and its hydrates (BAUER), A., ii, 26.
 auryl oxide, crystallised (WEIGAND), A., i, 136.
 aluminium phosphate. See Gorceixite.
 pyrophosphates (PAHL), A., ii, 87.
 sulphate, solubility of, in hydrogen peroxide (GAWALOWSKI), A., ii, 669.
- Barium**, precipitation of, as sulphate and its separation from calcium (SKRABAL and ARTMANN), A., ii, 804.
 separation of, as chromate, from calcium and strontium (SKRABAL and NEUSTADTL), A., ii, 126.
- Barley**, valuation of (BLEISCH and REGENSBURGER), A., ii, 135.
 manuring experiments on (DAIKUHARA), A., ii, 387; (BARTSCH), A., ii, 481; (V. FEILITZEN; WEIN), A., ii, 487.
 degree of stimulating action of manganese and iron salts on (KATAYAMA), A., ii, 888.
 influence of manganese and iron sulphates and potassium and sodium silicates on (VOELCKER), A., ii, 888.
 relation of the amount of nitrogen to the character of (PRIOR), A., ii, 135.
 manurial value of different potassium compounds for (Asō), A., ii, 891.
 amount of protein in, and potassium manuring (REITMAIR; WEIN), A., ii, 484.
- Barley stems**, formation of anthocyanin in (SUZUKI), A., ii, 884.
- Barometer**, new shortened, with reproducible vacuum combined with two forms of the compact pressure gauge (UBBELOHDE), A., ii, 432.
- Barytes**, occurrence of, in the sedimentary rocks of France (COLLOT), A., ii, 39.
 from Maryland (SCHALLER), A., ii, 369.
- Base**, $C_6H_7O_2N$, and its acyl derivatives, from the action of light on nitrobenzene in ethyl alcoholic solution (CIAMICIAN and SILBER), A., i, 10.
 C_8H_9ON , and its additive salts, from dimethylol-2-picoline (LIPP and ZIRNGIBL), A., i, 382.
 $C_{10}H_{12}N$, from pinene (WALLACH and ISAAC), A., i, 685.
 $C_{10}H_{18}ON_2$, from pinene (LEACH), P., 137.
 $C_{10}H_{19}ON$, from pulegonehydroxylamine (SEMMLER), A., i, 970.
 $C_{12}H_9N_3$, from the base, $C_{18}H_{13}N_3$ (ORTOLEVA), A., i, 715.
 $C_{15}H_{27}N$, from the action of ammonia on isovaleraldehyde (TSCHITSCHIBABIN), A., i, 452.
- Base**, $C_{16}H_{18}N_4S_2$, $C_{18}H_{20}N_4S_2$, and $C_{20}H_{20}N_4S_2$, from *as*-disubstituted thiocarbamides (DOST), A., i, 351.
 $C_{16}H_{15}O_2N_4$, from ethyl isosuccinate and *o*-phenylenediamine (MEVER and JAEGER), A., i, 766.
 $C_{18}H_{13}N_3$, hydriodide of, from the action of iodine on benzaldehydenaphthalhydrazone in pyridine solution (ORTOLEVA), A., i, 715.
 $C_{20}H_{16}ON_2$, and its salts, from chrysophenol (DUNSTAN and HEWITT), T., 1478; P., 243.
- Bases**, formation of, from acetophenone, formaldehyde, and ammonium chloride (SCHÄFER and TOLLENS), A., i, 574.
 formation of, from aldehydes and ketones (WALLACH, HÜTTNER, and ALtenburg), A., i, 160.
 from ox muscle, physiological action of (KUTSCHER and LOHMANN), A., ii, 877.
 solubility and specific rotatory power of, in pyridine and other solvents (HOLTY), A., ii, 61.
 action of, on chloral hydrate (ENKLAAR), A., i, 929.
 action of, on thiocarbamides (V. WALTHER and STENZ), A., i, 831.
 compounds of, with bismuth chloride (VANINO and HARTL), A., i, 574.
 compounds of, with hydroferrocyanic, hydroferricyanic, and hydrocobalticyanic acids (WAGENER and TOLLENS), A., i, 149.
 condensation products of, with hydroxybenzylbromides, relation between the constitution and stability of (AUWERS), A., i, 258.
 compounds of, with mercuric iodide (FRANÇOIS), A., i, 644.
 compounds of, with metallic thiocyanates (GROSSMANN and HÜNSELER), A., i, 7; (GROSSMANN and SCHÜCK), A., i, 629.
 compounds of, with palladous bromide and chloride (GUTBIER and KRELL), A., i, 12, 244.
 condensation products of, with ψ -phenols containing strongly negative substituting groups (AUWERS and SCHRÖTER), A., i, 347.
 aromatic, salts of, with dicarboxylic acids (ANSELMINO), A., i, 493.
 cyclic, affinity constants of (DEDICHEN), A., i, 539.
 tertiary cyclic, compounds of, with palladic chloride (MÖHLAU), A., i, 304.

Bases, toxic, detection of, in urine (KUTSCHER and LOHMAN), A., ii, 471, 786, 875.
 See also Amines and Diamines.

Basic slag. See Slag, basic.

Bath, constant temperature, for low temperatures (GIVEN), A., ii, 148.

Bathofluors, definition of term (FRANCESCONI and BARGELLINI), A., ii, 714.

Beans, Java, Burma, and haricot, presence and detection of cyanogen in (TATLOCK and THOMSON), A., ii, 711.

Becquerel rays. See under Photochemistry.

Beef fat, detection of, in lard (DUNLOP), A., ii, 502.
 flesh, proteids of (TROWBRIDGE and GRINDLEY), A., ii, 374.

Beer, detection of salicylic acid in (GORNI), A., ii, 313.

Bee's wax. See Wax.

Beet molasses. See under Molasses.

Beetroot (sugar), consumption of nutrients by, and their seedlings (ANDRLÍK, STANĚK, and URBAN), A., ii, 300.
 destruction of nematodes by treating the soil with carbon disulphide and its effect on (WILFARTH, RÖMER, and WIMMER), A., ii, 485.
 retention of the injurious nitrogen compounds of, by the sap, their stability in the purification process, and their increase during prolonged storage of the roots (ANDRLÍK and URBAN), A., ii, 388.
 substitution of potassium by sodium in (URBAN), A., ii, 576.
 estimation of sucrose in (VIVIANI and GALEATI; PELLET), A., ii, 586.
 estimation of sugar in (HÖGLUND), A., ii, 130.

Beetroot seeds, composition of (STROHMER and FALLADA), A., ii, 484.
 apparatus and methods for the investigation of (SCHREFELD), A., ii, 130.

Beetroot shoots, seed-, and beet seedlings, composition of (FALLADA), A., ii, 881.

Behenic acid, bromo- (PONZIO), A., i, 66.

Benz-. See also Benzo-, Benzoyl-, and under the parent Substance.

Benzaldehyde, synthesis of, and its condensation with benzidine (GATTERMANN), A., i, 589.
 behaviour of, in presence of iodoxybenzene and under the influence of light (MASCARELLI), A., i, 962.

Benzaldehyde, electrolytic oxidation of (LAW), T., 1443; P., 197.
 condensation of, with acetonedicarboxylic esters in presence of ammonia (PETRENKO-KRITSCHENKO and ZONEFF), A., i, 452.
 reaction of, with cinnamic acid, quinoline, and 2-methylquinoline in sunlight (BENRATH), A., i, 535.
 reactions of, with glucosides and sugars (ALBERDA VAN EKENSTEIN and BLANKSMA), A., i, 511.
 reactions of, with hydroxy-acids (ALBERDA VAN EKENSTEIN and BLANKSMA), A., i, 512.
 condensation of, with 2:4:6-trimethylpyridine (KOENIGS and BENTHEIM), A., i, 37.
 estimation of small quantities of (HÉRISSEY), A., ii, 312.

Benzaldehyde, *p*-amino-, *N*-acetyl derivative of (RURE and SIEBEL), A., i, 858.

p-chloro-, *p*-hydroxy-, and *o*- and *p*-nitro-, condensation of, with dibenzyl ketone (SCHIMETSCHEK), A., i, 368.
 2-chloro-5-nitro-, sulphonation of, with alkali sulphites (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 512.
 hydroxy-derivatives, sulphonic esters of (BÄDISCHE ANILIN- & SODA-FABRIK), A., i, 413.
 4-iodo-2-nitro-, 2:4-di- and 2:4:6-trinitro-, 2:6-dinitro-4-amino-, and 2-nitro-4-hydroxy-, and their phenylhydrazone (SACHS and KANTOROWICZ), A., i, 908.

o-nitro-, action of, on dimethylaniline in presence of hydrochloric acid (ZINCKE and PRENTZELL), A., i, 110.
 action of, on phenols in presence of hydrogen chloride (ZINCKE and SIEBERT), A., i, 515.

para-substituted derivatives of (SACHS and KANTOROWICZ), A., i, 908.

p-nitroso-, condensation of, with the three nitroanilines (ALWAY and GORTNER), A., i, 994.

Benzaldehyde-4-diazonium salts, 2-nitro- and 2:6-dinitro- (SACHS and KANTOROWICZ), A., i, 908.

Benzaldehydophenylhydrazone, action of light on (CHATTAWAY), T., 462; P., 36.
 action of iodine on, in pyridine solution (ORTOLEVA), A., i, 715.

- Benzaldehydephenylhydrazone**, compounds of, with trinitrobenzene and trinitrotoluene, and its picrate and its *m*-nitro-derivative (CIUSA), A., i, 962.
- Benzaldehydephenylhydrazone-p-sulphonic acid**, 2:4:6-trinitro- (SACHS and KANTOROWICZ), A., i, 909.
- Benzaldehyde-2-sulphonic acid**, 4-nitro-, potassium salt (GREEN and CROSSLAND), T., 1606; P., 257.
- Benzaldehyde-*m*-tolyl-hydrazone and -semicarbazone** (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 460.
- Benzaldoxime** and *m*-nitro-, oxidation of, with amyl nitrite (MINUNNI and CIUSA), A., i, 187.
- action of nitrogen tetroxide on (PONZIO), A., i, 593.
- peroxide and *m*-nitro- (FRANZEN and ZIMMERMANN), A., i, 388; (PONZIO and BUSTI), A., i, 855.
- Benzamide**, formyl derivative (*benzoyl-aminoformaldehyde*) (EINHORN, BISCHKOPFF, and SZELINSKI), A., i, 246.
- Benzamide**, 4-bromo-2:6-dinitro-3-hydroxy- (BORSCHE and GAHRTZ), A., i, 957.
- N*-chloro-, and its reactions (MOHR), A., i, 357.
- Benzanilide**, *p*-amino-, diazotisation of, and its compound with azo- β -naphthol (MORGAN and WOOTTON), P., 23.
- p*-iodo-, and 3:5-dinitro- (JOHNSON and MEADE), A., i, 852.
- thio-, formation and behaviour of (CIUSA), A., i, 953.
- Benzanthronequinoline** (BADISCHE ANILIN- & SODA-FABRIK), A., i, 889.
- Benzene** and its derivatives, absorption of the vapours of, in the ultra-violet (GREBE), A., ii, 410.
- specific inductive capacity of (BEAULARD), A., ii, 3.
- chlorination of, in light (GOLDBERG), A., ii, 513.
- retardation of the chlorination of, by oxygen (LUTHER and GOLDBERG), A., ii, 641.
- derivatives, position-isomeric, new case of form-analogy and miscibility of (JAEGER), A., i, 641.
- condition of, as deduced from the magnetic rotation (KAUFFMANN), A., ii, 520.
- triazonides of (HARRIES), A., i, 225.
- detection and estimation of toluene in (RAIKOW and ÜRKEWITSCH), A., ii, 310.
- estimation of carbon disulphide in (STAVORINUS), A., ii, 580.
- Benzene**, estimation of carbon disulphide and total sulphur in commercial (JOHNSON), A., ii, 799.
- Benzene, *o*- and *m*-dibromo-**, nitration of (HOLLEMAN), A., i, 345.
- o*- and *p*-, *o*- and *m*-, and *p*- and *m*-bromonitro-, fusion, boiling point and vapour composition curves (760 mm. pressure) in the systems (v. NARBUTT), A., ii, 147.
- d*bromonitro-, six isomeric, crystalline forms of (JAEGER), A., i, 641.
- 4:6-dibromo-1:3-dinitro- and 4-chloro-1:3:5-tribromo-2:6-dinitro-, compounds of, with dimethylaniline (JACKSON and CLARKE), P., 83.
- mono*- and *di*-chloro-, as solvents for resins (ANDÉS), A., i, 154.
- dichloronitro-derivatives, crystallography of (JAEGER), A., i, 642.
- 1:2-dichloro-4-nitro-, preparation of (OEHLER), A., i, 642.
- 1:5-dichloro-2:4-dinitro-, action of pyridine on (REITZENSTEIN and ROTHSCHILD), A., i, 454.
- s*-trichlorotrinitro-, compounds of, with methylaniline and pyridine (JACKSON and CLARKE), P., 84.
- halogen-nitro-derivatives of (KÖRNER), A., i, 640; (KÖRNER and CONTARDI), A., i, 641.
- 1:2-dihydroxy-. See Catechol.
- 1:3-dihydroxy-. See Resorcinol.
- 1:4-dihydroxy-. See Quinol.
- 1:2:3-trihydroxy-. See Pyrogallol.
- 1:3:5-trihydroxy-. See Phloroglucinol.
- nitro*-, action of light on (CIAMICIAN and SILBER), A., i, 10.
- behaviour of, in the organism (MEYER), A., ii, 244.
- detection and estimation of, in nitrotoluene (RAIKOW and ÜRKEWITSCH), A., ii, 310.
- m*-dinitro-, electrolytic reduction of (BRAND), A., i, 80.
- o*- and *p*-dinitro-, reduction of (MEISENHEIMER and PATZIG), A., i, 642.
- trinitro*-, influence of substituents in, on the formation of additive compounds with arylamines (SUDBOROUGH and PICTON), T., 583; P., 84.
- additive products of, with aromatic substances containing the side-chain $\cdot\text{CH:N}\cdot$ (CIUSA), A., i, 962.
- additive products of derivatives of, with certain aromatic nitrogen compounds (CIUSA and AGOSTINELLI), A., i, 891.
- 4-Benzeneazo-8-acetylaminonaphthal** (FICHTER and GAGEUR), A., i, 840.

- Benzeneazoanilinophenyliminomethane** and its *p*-mono- and *di*-chloro-derivatives (BUSCH and BRANDT), A., i, 466.
- 4-Benzeneazo-antipyrine**, -5-chloro-1-phenyl-3-methylpyrazole alkylhaloids, and -thiopyrine (MICHAELIS and SCHLECHT), A., i, 614.
- Benzene-*p*-azobenzaldehyde**, *m*- and *p*-nitro-, and their oximes, anils, and *m*- and *p*-nitroanils (ALWAY and GORTNER), A., i, 995.
- Benzene-*p*-azobenzoylacetone**, *p*-amino-, *N*-acetyl derivative of, and its phenylhydrazone (BÜLOW and BUSSE), A., i, 717.
- 4-Benzeneazo-2-bromo-6-nitrophenol**, preparation of, and its sodium and potassium salts, and acetyl and benzoyl derivatives (HEWITT and WALKER), T., 188; P., 16.
- Benzene-*o*-azochlorobenzoic acid** (FREUNDLER), A., i, 544.
- Benzeneazo-*p*-cyano-anilide**, -*o*-ethoxy-anilide, -*o*- and -*m*-toluidides, and -*α*-naphthylamide (PIERRON), A., i, 772.
- Benzene-5-azodimethyl-4:6-diamino-*m*-xylene**, *p*-nitro- (MORGAN and CLAYTON), T., 1057; P., 174.
- Benzeneazo-4:6-dimethylcoumarin** and *o*-, *m*-, and *p*-nitro- (HEWITT and MITCHELL), T., 15.
- 4-Benzeneazo-1:5-diphenyl-3-methyl-pyrazole**, *p*-amino-, *N*-acetyl derivative of (BÜLOW and BUSSE), A., i, 717.
- Benzeneazodiphenyl-*m*-toluidine** (HAEUSSERMANN), A., i, 911.
- Benzeneazoeugenol**, bromo-, chloro-, and nitro-derivatives and their acetyl compounds and ethyl ethers (ODDO and PUXEDDU), A., i, 992.
- Benzeneazoisoeugenol** and *o*- and *p*-nitro- (PUXEDDU), A., i, 774.
- Benzeneazo-*m*-hydroxybenzoic acid**, and *m*- and *p*-chloro-, and their reduction (PUXEDDU), A., i, 995.
- Benzeneazo-1:3:6-*tri*hydroxynaphthalene** (MEYER and HARTMANN), A., i, 20.
- Benzeneazo-1-hydroxy-2-naphthoic acid**, action of diazo-compounds on, and its reduction (GRANDMOUGIN), A., i, 997.
- Benzeneazo-4-methyl-*α*-naphthacoumarin** and *o*-, *m*-, and *p*-nitro- (HEWITT and MITCHELL), T., 17.
- Benzeneazo-*β*-naphthol**, *o*-, *m*-, and *p*-nitro-, preparation of (HEWITT and MITCHELL), T., 1169; P., 170.
- p*-Benzeneazo-*m*-nitrobenzoic acid** and its ethyl ester (WERNER and PETERS), A., i, 220.
- Benzeneazo-*o*-nitrophenol**, action of bromine on (HEWITT and WALKER), T., 182; P., 16.
- Benzeneazo-*p*-phenyl-, -*o*-ethoxyphenyl-, -*α*-naphthyl-, and -*o*- and -*m*-tolyl-carbamides** and their benzoyl derivatives (PIERRON), A., i, 772.
- 4-Benzeneazo-5-phenyl-3-methyl-*iso*-oxazole**, *p*-amino-, and its *N*-acetyl derivative (BÜLOW and BUSSE), A., i, 717.
- Benzeneazophenyltrimethylammonium salts** (VORLÄNDER, LOGOTHETIS, and PEROLD), A., i, 773.
- Benzeneazo-*o*-thymotic acid** and its reduction (PUXEDDU), A., i, 995.
- Benzeneazo-*m*-toluidine**, *m*-amino-. See *m*-Aulinoazo-*m*-toluidine.
- Benzene-*β*-diazoaminonaphthalene-8-sulphonic acid**, sodium salt (SMITH), T., 1507; P., 236.
- Benzenediazobis-diethyl-, -dimethyl- and -methyleneethyl-ketoximes** and -4-dimethylaminobenzaldoxime (BRESLER, FRIEDEMANN, and MAI), A., i, 322.
- Benzenediazonium salts**. See Diazobenzene salts.
- Benzenediazo-*ψ*-semicarbazinocamphor** and its reactions and *p*-bromo-, *p*-chloro-, and *o*-, *m*-, and *p*-nitro-derivatives (FORSTER), T., 222; P., 31.
- Benzenehexacarboxylic acid**. See Melitic acid.
- Benzene nucleus**, effects of substituents in the, lecture experiment (THIELE), A., ii, 661.
- Benzene ring**, problem of substitution in the (HOLLEMAN), A., i, 489.
- Benzenesulphinic acid**, *o*-cyano- (WALKER and SMITH), T., 355; P., 62.
- Benzenesulphomethylguanidine** (ACKERMANN), A., i, 768.
- Benzenesulphonic acid** and chloride, *o*-cyano-, preparation and reactions of (WALKER and SMITH), T., 350; P., 62.
- menthyl ester, and its rotation (PATTERSON and FREW), T., 332; P., 19.
- methyl ester, hydrolysis of (PRAETORIUS), A., i, 736.
- Benzenesulphonic acid**, 2:3:4:5-tetra-chloro-, and its salts (NOELTING and BATTEGAY), A., i, 221.
- o*-cyano-, amide and chloride of (BRADSHAW), A., i, 359.
- Benzenesulphon-methylpropyl-, and -ethyl-*n*- and -*iso*-propyl-amides**, synthesis of (MULDER), A., i, 484.
- Benzenesulphonylaminooacetonitrile**, and its alkyl and acyl derivatives (JOHNSON and MCCOLLUM), A., i, 156.

- ω -Benzenesulphonylaminobenzylamines**, preparation of, and the action of nitrous acid on (MORGAN and MICKLETHWAIT), T., 1161; P., 174.
- Benzenesulphonyldiaminomesitylene** and its diazotisation and azo- β -naphthol derivative (MORGAN and MICKLETHWAIT), T., 1299; P., 240.
- Benzenesulphonyl-5- and -8-aminonaphthalene-1-azo- β -naphthols** (MORGAN and MICKLETHWAIT), T., 9.
- Benzenesulphonyl- ω -aminotoluene-2-, -3-, and -4-azo- β -naphthols** (MORGAN and MICKLETHWAIT), T., 1163; P., 174.
- 4-Benzenesulphonyl-1:4:6-diamino-m-xylene** and its diazotisation and azo- β -naphthol derivative (MORGAN and MICKLETHWAIT), T., 1296; P., 240.
- 1-Benzenesulphonyl-2-ethoxypyridoline** (WOHL, SCHÄFER, and THIELE), A., i, 105.
- ω -Benzenesulphonyl- ω -methyl- α - and - m -aminobenzylamines**, preparation of, and their diazotisation (MORGAN and MICKLETHWAIT), T., 1165; P., 174.
- $\alpha\beta$ -Benzenesulphonyl-N-methyl- α -aminonaphthalene-1-azo- β -naphthol** (MORGAN and MICKLETHWAIT), T., 12.
- Benzenesulphonylmethyl- ω -aminotoluene-2- and -3-azo- β -naphthols** (MORGAN and MICKLETHWAIT), T., 1167; P., 174.
- 4-Benzenesulphonylmethyl-4:6-diamino-m-xylene** and its diazotisation and azo- β -naphthol derivative (MORGAN and MICKLETHWAIT), T., 1297.
- Benzenesulphonyl-N-methyl- α -naphthylamine, 8-nitro-, and -1:8-naphthylenediamine** (MORGAN and MICKLETHWAIT), T., 12.
- Benzenesulphonylmethyl-6-nitro-m-4-xylidine** (MORGAN and MICKLETHWAIT), T., 1297.
- Benzenesulphonyl- α -naphthylamine, 5- and 8-nitro-, and their reduction** (MORGAN and MICKLETHWAIT), T., 8.
- Benzenesulphonylnaphthylenediamines, 1:5- and 1:8-, diazo-derivatives of** (MORGAN and MICKLETHWAIT), T., 4.
- Benzenesulphonyl-4-nitro- α -toluidine** (MORGAN and MICKLETHWAIT), T., 1294.
- Benzenesulphonyl-2-nitro-p-toluidine** and its diazotisation (MORGAN and MICKLETHWAIT), T., 1293.
- 2-Benzenesulphonyl-2:4-tolylenediamine** and its diazotisation and azo- β -naphthol derivative (MORGAN and MICKLETHWAIT), T., 1294; P., 240;
- Benzene-1:2:6-tricarboxylic acid** See Hemimellitic acid.
- Benzylaminooxime** (WIELAND and BAUER), A., i, 412.
- 4:4'-Benzylbis-1:3:5-phenylmethyl-pyrazolone** and *p*-chloro- and nitro-derivatives (MICHAELIS and ZILG), A., i, 216.
- Benzylnitrosolic acid** and its salts (WIELAND and BAUER), A., i, 412.
- Benzyl-1:3:5-phenylmethylpyrazolone-1':3'-phenylmethylpyrazole** and its additive salts and *p*-chloro- and nitro-derivatives (MICHAELIS and ZILG), A., i, 216.
- Benzhydrol**, 5-chloro-2-amino-4'-hydroxy-, and 5-chloro-4'-hydroxy- (ZINCKE and SIEBERT), A., i, 515.
- 3:5-dichloro-2-hydroxy-** (ANSCHÜTZ and SHORES), A., i, 516.
- Benzidine**, action of, on dinitrophenylpyridinium chloride (REITZENSTEIN and ROTHSCHILD), A., i, 454.
- oxidation of (WILLSTÄTTER and KALB), A., i, 996.
- condensation of, with aromatic aldehydes (GATTERMANN), A., i, 589.
- coupling of, with aniline (VIGNON), A., i, 391.
- chromate, so-called, and allied substances (MOIR), P., 258.
- diazo-derivatives (VIGNON), A., i, 223.
- sulphate, titration of (BIEHRINGER and BORSUM), A., ii, 637.
- Benzidine dyes**, injection of, into normal animals (BOUFFARD), A., ii, 694.
- Benzidinedisulphonic acid**, Griess', constitution of (SCHULTZ and KOHLHAUS), A., i, 818.
- Benzidine series**, azoimides of the (VAUBEL and SCHEUER), A., i, 323.
- Benzidine-2-sulphonic acid** (MOIR), P., 258.
- Benzidinesulphonic acids**, action of, on dinitrophenylpyridinium chloride (REITZENSTEIN and ROTHSCHILD), A., i, 454.
- Benzidinodiisobutyronitrile** and its amide (BUCHERER and GROLÉE), A., i, 350.
- Benzil**, electrolytic oxidation of (LAW), T., 1442; P., 197.
- electrolytic reduction of (LAW), T., 1526.
- reduction of, by aldehydes, in sunlight (BENRATH), A., i, 535.
- Benzil, trihydroxy-** (NOELTING and KADIERA), A., i, 594.
- Benziminazole**, 6-chloronitro- (FISCHER and LIMMER), A., i, 896.

- Benziminazoles**, synthesis of (MELDOLA), T., 1938; P., 303.
 from 4:2-nitroaminodiphenylamine (v. WALTHER and KESSLER), A., i, 898.
 and their resolution (FISCHER and RÖMER), A., i, 539; (FISCHER and LIMMER), A., i, 895.
- Benzo-**. See also Benz-, Benzoyl-, and under the parent Substance.
- p-Benzobetaine** and its hydroxide, methyl ester of, affinity constants of (JOHNSTON), A., ii, 733.
- Benzobetaines**, *o*- and *m*-, affinity constants of (CUMMING), A., ii, 734.
- Benzocerroxene**, α - and β -Benzocerroxenols, acetates of, and α - and β -Benzocerroxonium ethyl ethers and their ferrichlorides (LAUBE), A., i, 598.
- Benzocerroxenes**, Benzocerroxenols and their acetyl derivatives, Benzocerroxonols, and Benzocerroxonium salts, α - and β - (DECKER and LAUBE), A., i, 689.
- Benzofulvenecarboxylic acid** and its methyl ester (THIELE and RÜDIGER), A., i, 586.
- Benzofuroin**, electrolytic oxidation of (LAW), T., 1446; P., 197.
- Benzoic acid**, use of Grignard's reaction in the synthesis of (MEYER and TÖGEL), A., i, 757.
- esterification of, by means of alcoholic hydrogen chloride (KAILAN), A., ii, 659.
- esterification constant of (WEGSCHEIDER and KAILAN), A., ii, 340.
- differentiation of the two pharmaceutical (CORMIMBOEUF and GROS-MAN), A., ii, 636.
- Benzoic acid**, salts, solubility of, in water (PAIETTA), A., i, 952.
- Benzoic acid**, *o*-amino-. See Anthranilic acid.
- m*-amino-, and its methyl derivatives and esters, affinity constants of (CUMMING), A., ii, 734.
- chloroethyl ester (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 846.
- o*- and *m*-amino-, alkamine esters of, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 845.
- N*-alkylated alkamine esters of, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 846.
- p*-amino-, and its methyl derivatives, affinity constants of (JOHNSTON), A., ii, 733; (WALKER), A., ii, 735.
- alkamine esters, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 847.
- Benzoic acid**, *o*-, *m*-, and *p*-amino- and *o*-, *m*-, and *p*-hydroxy-, relative rates of oxidation of (BRADSHAW), A., i, 360.
- 6*-amino-3-hydroxy-, formation of (PUXEDDU), A., i, 996.
- isomeric *di*bromo-, menthyl esters, rotation of (COHEN and ZORTMAN), T., 47.
- m*- and *p*-bromothio- and *m*-nitrothio- (JOHNSON, BATEMAN, PALMER, and BRAUTLECHT), A., i, 954.
- isomeric chloronitro - derivatives, menthyl esters, rotation of (COHEN and ARMES), T., 454; P., 74.
- 4-chloro-3-nitro-, ethyl ester, condensation of, with phenylhydrazine (WERNER and PETERS), A., i, 220.
- p*-halogenated, methyl esters (JAEGER), A., i, 273.
- hydroxy-derivatives, oxidation products of (PERKIN), T., 251; P., 41.
- sulphonic esters of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 413.
- o*-hydroxy-. See Salicylic acid.
- 3:4:5-trihydroxy-. See Gallie acid.
- 2:4-, 2:6-, and 3:5-dinitro-, menthyl esters, rotation of (COHEN and ARMES), T., 1479; P., 241.
- o*-nitroso-, and its methyl ester (HELLER and MAXER), A., i, 585.
- dithio-. See Phenylcarbithionic acid.
- Benzoic arsenic anhydride** (PICTET and BON), A., i, 3.
- o*-Benzoin sulphinide** ("saccharin"), apparatus for the complete extraction of liquids containing (DUYK), A., ii, 407.
- test for (KASTLE), A., ii, 503.
- o*-Benzoin sulphinide**, fluoro- (HOLLMAN), A., i, 942.
- Benzoin** and its ethyl and acetyl derivatives, electrolytic oxidation of (LAW), T., 1440; P., 197.
- Benzonitrile**, 4-bromo-2:6-dinitro-3-hydroxy-, and its aniline salt, 2:6-dinitro-3-hydroxy-, and its aniline salt and acetate (BORSCHE and GAHTZ), A., i, 957.
- 2:4:6-trinitro-3-hydroxy-. See Picric acid, cyano-.
- Benzophenone** derivatives (PERKIN and WEIZMANN), T., 1649; P., 269; (PERKIN and ROBINSON), P., 305.
- chloride, condensation of, with α -naphthol (SHRIMPTON), A., i, 659.
- condensation of, with α - and β -naphthols and their sodium derivatives (CLOUGH), T., 771; P., 109.
- semicarbazone (BLAISE and COURTOT), A., i, 795.

- Benzophenone**, *p*-bromo- (CONE and LONG), A., i, 424.
5:5-dibromo-2:2'-dihydroxy- (DIELS and ROSEN MUND), A., i, 674.
3-bromo-4-hydroxy-, 3:5-dibromo-4-hydroxy-, and p-hydroxy-, and their salts (HANTZSCH and BLACKLER), A., i, 857.
5-chloro-2-amino-4'-hydroxy-, and its derivatives, and 5-chloro-4-hydroxy-, and its acetyl derivative (ZINCKE and SIEBERT), A., i, 515.
2-chloro-5-nitro-, and its conversion into nitrophenylacridine derivatives (ULLMANN and ERNST), A., i, 205.
2-chloro-3:5-dinitro-, and its conversion into dinitrophenylacridine derivatives (ULLMANN and BROIDO), A., i, 188.
3:5-dihalogen-2-hydroxy-, and their oximes and phenylhydrazone (ANSCHÜTZ, SHORES, LÖWENBERG, and SCHMITZ), A., i, 516.
o-nitro-, and its reduction products (BAEZNER and GARDIOL), A., i, 673.
3:5-dinitro-2-amino- (ULLMANN and BROIDO), A., i, 188.
Benzopinacolins, α - and β -, constitution of (WERTHEIMER), A., i, 271; (DELACRE), A., i, 518.
Benzopyran derivatives (BÜLOW and SCHMID), A., i, 201.
quonoid (BÜLOW and SCHMID), A., i, 598.
o-Benzoinone, tetrabromo-, derivatives of (JACKSON and RUSSE), A., i, 288.
tetrachloro-, derivatives of (JACKSON and MACLAURIN), A., i, 97.
hydroxy-, and its acetyl derivative (PERKIN and STEVEN), T., 803; P., 114.
p-Benzoinone, *dibromodicyano-, chlorodicyano-, dichlorodicyano-, and dicyano-* (THIELE and GÜNTHER), A., i, 743.
p-Benzoinoneazine and its quinhydrone (WILLSTÄTTER and BENZ), A., i, 997.
p-Benzoinonedicarboxylic acid, anhydride and imide of (THIELE and GÜNTHER), A., i, 745.
p-Benzoinoneimide, amino-, salts of (KEHRMANN and PRAGER), A., i, 967.
Benzoquinoneoxime (*nitrosophenol*) (SLUITER), A., i, 255.
p-Benzothiazoles, new method of preparing (SCHMIDT), A., i, 711.
Benzothiazole-2-propionic acid and its salts, methyl ester, anilide, and thiocyanilate (REISSERT and MORÉ), A., i, 827.
Benzo-o- and -p-toluidides, 3:5-dinitro- (JOHNSON and MEADE), A., i, 853.
Benzotrichloride, 2:5-dichloro- (ANSCHÜTZ and ANSPACH), A., i, 503.
Benzoxazole, methiodide (FISCHER and RÖMER), A., i, 541.
Benzoxy-. See Benzoyloxy.
Benzoyl. See also Benz-, Benzo-, and under the parent Substance.
Benzoyl chlorides, di-*o*-substituted, steric hindrance in the interaction of menthol with (COHEN), T., 1482.
nitrate, preparation and reactions of (FRANCIS), T., i.
Benzoylacetic acid, ethyl ester, condensation of, with anthranilic acid (v. NIEMENTOWSKI), A., i, 38.
Benzoylacetone derivatives (ISSOGLIO), A., i, 862.
Benzoylacetylacetone acid, ethyl ester, synthetical experiments with (BORSCHE and FELS), A., i, 509.
Benzoylacrylic acid and its methyl ester and phenylhydrazone and Pechmann's dye from (KOZNIEWSKI and MARCHLEWSKI), A., i, 759.
o-Benzoylbenzoic acid, bromo- and bromonitro-derivatives (KUNCKELL and KNIGGE), A., i, 180.
Benzoylisobutyric acid, ethyl ester (BLAISE and COURTOT), A., i, 795.
Benzoylcarbamide, *p*-bromo- (JOHNSON and JAMIESON), A., i, 352.
Benzoylcarbinol, behaviour of, towards alkalis and oxidising agents (EVANS), A., i, 269.
1-Benzoyl-2:2-dihydroquinoline (BENRATH), A., i, 535.
Benzoyldioxindole (HELLER and MAYER), A., i, 585.
Benzoyldiphenylamide, 3:5-dinitro- (JOHNSON, MEADE, and CHALKER), A., i, 853.
Benzoyldiphenylbromomethane (WERNER and GERHARDT), A., i, 436.
Benzoyldiphenylcarbinol, methyl and ethyl esters of (WERNER and GERHARDT), H., i, 436.
Benzoyldiphenylene-bromomethane and -carbinol, methyl ether of (WERNER and SCHÖLER), A., i, 436.
Benzoylenebenzimidazole (THIELE and FALK), A., i, 751.
o-Benzoylenetoliminzazole and its platinichloride (THIELE and FALK), A., i, 752.
Benzoylfuorene (WERNER and SCHÖLER), A., i, 436.
Benzoylformaldehyde, behaviour of, towards oxidising agents (EVANS), A., i, 270.

- Benzoylglycolylaminoacetic acid**, ethyl ester (CURTIUS and DARAPSKY), A., i, 403.
- Benzoylglycolylglycylglycine**, ethyl ester (CURTIUS and THOMPSON), A., i, 404.
- Benzoyl groups**, direct estimation of (MEYER and HARTMANN), A., ii, 58.
- Benzoylmethylanilide**, 3:5-dinitro- (JOHNSON, MEADE, and CHALKER), A., i, 853.
- Benzoyl-a-naphthylamide**, 3:5-dinitro- (JOHNSON, MEADE, and CHALKER), A., i, 853.
- o-Benzoyloxybenzoic acid** (*benzoylsalicylic acid*) (HOFFMANN, LA ROCHE & Co.), A., i, 669.
- 3-Benzoyloxy-1-phenylbenzoxazole** (KAUFFMANN and DE PAY), A., i, 168.
- α-Benzoyl-Δβ-pentenoic acid**, γ-aminoethyl ester (BORSCHE and FELS), A., i, 509.
- 5-Benzoylphenoxazine**, 3-nitro- (ULLMANN and BRODO), A., i, 190.
- Benzoylphenylcarbamide** (MOHR), A., i, 252.
- 1-Benzoylphtalazine** and its oxime and their additive salts (LIECK), A., i, 50.
- 3-Benzoylpicolinamide** (KIRPAL), A., i, 694.
- Benzoylpiperidoethanol**, m-amino- (FARBEWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 846.
- Benzoylpropionic acids**, α- and β-, ethyl esters and salts, synthesis of (MEYER and TÖGEL), i, 758.
- 3-Benzoylpyridine**, 2-amino- and 2-hydroxy- (KIRPAL), A., i, 694.
- 2-Benzoylpyridineoxime** and its metallic derivatives (TSCHUGAEFF), A., i, 984.
- Benzoylpyruvic acid** (*acetophenoneoxalic acid*), ethyl ester, action of benzaldehyde on (RUHEMANN), T., 1243; P., 198.
- Benzoylsalicylic acid**. See *o*-Benzoyloxybenzoic acid.
- Benzoylthebaol** and its quinone (PSCHORR and HAAS), A., i, 204.
- Benzoyldithiocarbamic acid**, m- and p-bromo-, and m-nitro-, esters (JOHNSON, BATEMAN, PALMER, and BRAUTLECHT), A., i, 954.
- Benzyl acetate**, 5-nitro-2-hydroxy-, bromide, m-bromo-*o*-hydroxy-, and its urethane, 3-bromo-5-nitro-, 3-nitro-4-hydroxy-, and 5-nitro-2-hydroxy-, and chloride, 3-nitro-4-hydroxy-, and 5-nitro-2-hydroxy- (AUWERS), A., i, 838.
- alcohol**, 3:5-dichloro-*p*-hydroxy-, ethyl ether of (METTLER), A., i, 851.
- Benzyl alcohol**, *o*-hydroxy-. See Saligenin.
- bromide, 3:5-dibromo-2- and -4-hydroxy- and tetrabromo-*o*-, -*m*-, and -*p*-hydroxy-, condensation of, with bases (AUWERS and SCHRÖTER), A., i, 259.
- 3-bromo-5-nitro-4-hydroxy-, compounds of, with amines, and their acetates (AUWERS and SCHRÖTER), A., i, 347.
- bromides, hydroxy-, condensation of, with organic bases, relation between the constitution and stability of (AUWERS), A., i, 258.
- chloride, action of, on aminophenols (BAKUNIN), A., i, 496.
- o*-mono- and *op-di*-nitro-, conversion of, into acridine derivatives (BAEZNER, GARDIOL, and GUEORGUIEFF), A., i, 699.
- cyanide. See Phenylacetonitrile.
- iodide, action of, on nitrogen iodide (SILBERRAD and SMART), T., 172; P., 15.
- p*-cyano- (FREUND and REITZ), A., i, 602.
- mercaptan, nitrite, and sulphide, tetrabromo-*p*-hydroxy-, and their acetyl derivatives (ZINCKE and BÖTTCHER), A., i, 167.
- Benzylacetooctac acid**, tetrabromo-*p*-hydroxy-, ethyl ester (ZINCKE and BÖTTCHER), A., i, 166.
- Benzylacetone**, tetrabromo-*p*-hydroxy-, and its acetyl derivative (ZINCKE and BÖTTCHER), A., i, 166.
- isonitroso-*, preparation of (PONZIO), A., i, 66.
- Benzylamine**, *N*-formyl derivative (VAN ROMBURGH; VAN ROMBURGH and VAN DORSSEN), A., i, 3.
- amino-, aminohydroxy-, hydroxy-, and nitrohydroxy-derivatives and their *N*-acyl derivatives (EINHORN, BISCHKOPFF, SZELINSKI, SCHUPP, LADISCH, and MAUERMAYER), A., i, 246.
- 3-amino-2-hydroxy-, and its *ω*-benzoyl derivative (EINHORN), A., i, 658.
- Benzylaminocarboxylic acid**, *N*-acyl derivatives of (EINHORN, BISCHKOPFF, SZELINSKI, and MAUERMAYER), A., i, 247.
- β*-Benzylamino-*β*-amyl- and -*β*-hexyl-acrylonitriles (MOUREU and LAZENNEC), A., i, 956.
- Benzylaminobutyric acid**, benzylamide of (SANI), A., i, 653.
- 3-Benzylamino-1:4-diphenyl-4:5-di-hydro-1:2:4-triazole**, 5-hydroxy- (BUSCH and MEHRTENS), A., i, 116.

- Benzylaminoformic acid**, esters (WEERMAN and JONGKEES), A., i, 665.
- p-Benzylaminophenol** and its hydrochloride (BAKUNIN), A., i, 496.
- β -Benzylamino- β -phenylacrylic acid**, ethyl ester, and β -phenylacrylonitrile (MOUREU and LAZENNEC), A., i, 956.
- Benzylaniline** and its *N*-nitroso- and formyl derivatives (WALLACH), A., i, 161.
- crystallographic constants of, and its miscibility in the solid state (JAEGER), A., i, 112.
- tetrabromo-p-hydroxy-** (ZINCKE and BÖTTCHER), A., i, 166.
- Benzyl-o-anisidine** and its allyl and methyl derivatives (WEDEKIND and FRÖHLICH), A., i, 162.
- Benzylanisylideneindene** (THIELE and BÜHNER), A., i, 571.
- Benzylarsine disulphide** and **Benzylarsonic acid** (DEHN and McGRAH), A., i, 341.
- 1-Benzyl-3-benzylideneindene** (THIELE and BÜHNER), A., i, 569.
- di-*p*-nitro- α -hydroxy-** (THIELE and BÜHNER), A., i, 571.
- Benzylborneols**, α - and β -, and their dehydration (HALLER and BAUER), A., i, 440.
- β -Benzylisobutyric acid**, α -amino-, and its nitrile, hydrochloride of (JAWELLOFF), A., i, 427.
- Benzylcamphenes**, α - and β - (HALLER and BAUER), A., i, 440.
- Benzylcarbithionic acid** and its salts (HOUBEN and POHL), A., i, 847.
- Benzyl dibenzyl ketone**. See $\alpha\gamma\delta$ -Triphenyl- β -butanone.
- Benzyl diethylamine**, 5-nitro-2-hydroxy- (EINHORN, BISCHKOPFF, and SZELINSKI), A., i, 247.
- Benzylidemethylaminodimethylcarbinol** and its benzoyl derivative, hydrochloride of (RIEDEL), A., i, 632.
- δ -Benzyl- $\beta\zeta$ -dimethyl- $\Delta^{\beta\epsilon}$ -heptadiene, δ -hydroxy-** (v. FELLENBERG), A., i, 567.
- γ -Benzyl- $\alpha\alpha$ -dimethylvinylacetic acid**. See δ -Phenyl- $\alpha\alpha$ -dimethyl- $\Delta\beta$ -pentenoic acid.
- α -Benzylenebenzimidazole** and its salts (THIELE and FALK), A., i, 751.
- Benzyleneimide**, new synthesis of, and its nitroso-derivative (ORLOFF), A., i, 420.
- Benzylethylsulphone** (FROMM and DE SEIXAS PALMA), A., i, 819.
- Benzylfluorene** (THIELE and HENLE), A., i, 572.
- 9-Benzylfluorene alcohol** (ULLMANN and v. WURSTEMBERGER), A., i, 77.
- β -Benzylglutaric acid** and its ethyl ester, anhydride, acid α -naphthylamide, and nitro-compound (VÖRLÄNDER and STRUNCK), A., i, 367.
- Benzylcyclohexylamine** and its formyl derivative (WALLACH), A., i, 160.
- 1-Benzylhydrocortarnine** and its hydroiodide (FREUND and REITZ), A., i, 601.
- Benzylidene diacetate**, *o*-nitro- (BAKUNIN and PARLATI), A., i, 664.
- Benzylideneacetone**, *p*-amino-, and its oxime, hydrazone, acyl, and thiocarbamide derivatives (RUPE and SIEBEL), A., i, 858.
- Benzylideneacetophenone**, *m*- and *p*-amino-, and their acetyl derivatives and oxime, and oximido-oxime of the *p*-compound (RUPE and PORAI-KOSCHITZ), A., i, 754.
- Benzylideneacetylketophenylparacone**. See Ketobenzylideneacetylphenylparacone.
- 5-Benzylideneamino-2:6-dioxy-3-methylpyrimidine**, 4-amino-, and **1-3-dimethylpyrimidine**, 4-amino- and 4-amino-2-hydroxy- (TRAUBE and NITZACK), A., i, 214.
- 1-Benzylideneamino-2-phenyl-2:3-naphthaliglyoxaline** and its additive salts and *o*-hydroxy- and *o*-nitro-derivatives (FRANZEN), A., i, 707.
- Benzylidene-aniline** and **-benzidine**, tri-nitro- (SACHS and KANTOROWICZ), A., i, 909.
- Benzylideneaniline** picrate (CIUSA), A., i, 962.
- Benzylideneanthrone** and *m*-nitro- (HALLER and PADOVA), A., i, 24.
- Benzylideneazine**, compound of, with trinitrotoluene and its picrate (CIUSA), A., i, 962.
- Benzylidenebis diazomethane**, *m*-nitro- (RUHEMANN), T., 1273.
- Benzylidenebisphenylmethylpyrazolone**, *o*-hydroxy- (BETTI and MUNDICI), A., i, 544.
- Benzylidenebis-1-phenyl-3-methyl-5-pyrazolone**, 2:5-dichloro-6-nitro- (MICHAELIS and ZILG), A., i, 217.
- 4-Benzylidenebis-1-phenyl-3-methyl-5-pyrazolone** (BETTI), A., i, 985.
- Benzylidene carbamidoxime**, properties of, and action of water on (CONDUCHE), A., i, 593.
- Benzylidenedibenzyl ketone**. See $\alpha\gamma\delta$ -Triphenyl- $\Delta\gamma$ -butylene- β -one.
- δ -Benzylidene- $\beta\zeta$ -dimethyl- $\Delta^{\beta\epsilon}$ -heptadiene** (v. FELLENBERG), A., i, 568.
- Benzylidenefluorene** and its dibromide and picrate (THIELE and HENLE), A., i, 571.

- 9-Benzylidenefluorene** (ULLMANN and v. WURSTEMBERGER), A., i, 77.
- Benzylidenegallacetophenone**, 3:4-di-hydroxy-, methylene ether of, and its triacetyl derivative (RUPE and VEIT), A., i, 435.
- Benzylidene-mono- and -di-gallacetophenones**, nitro-derivatives and their acetyl compounds (RUPE and VEIT), A., i, 435.
- β -Benzylidene-glutaric acid** and its anhydride, anil, and salts (MÜLLER), A., i, 960.
- Benzylidene-methylenedioxy- α -hydrindone** (PERKIN and ROBINSON), P., 160.
- α -Benzylidene- β -methylglutaconic acid** (FEIST and BEYER), A., i, 336.
- 3-Benzylidene-1-methylindene** (THIELE and BÜHNER), A., i, 570.
- Benzylidene- α -methylquinaldine**. See 2-Styryl-8-methylquinoline.
- 3-Benzylideneoxindole**, *o*-amino-. See α -Phenylcinnamic anhydride, *o*:2-di-amino.
- Benzylidene-1-phenyl-3-methyl-5-pyr-azolone**, 2:5-dichloro-3-nitro- (MICHAE LIS and ZILG), A., i, 217.
- Benzylidenequinaldine**. See 2-Styryl-quinoline.
- Benzylidenerhodanic acid**, *o*-amino- and *m*-nitro- (BARGELLINI), A., i, 536.
- m*- and *p*-hydroxy- (BARGELLINI), A., i, 384.
- Benzylidene-tetrazoline**, formula of (RUHEMANN), A., i, 465.
- 1-Benzylindene** and its dibromide and nitrosochloride (THIELE and BÜHNER), A., i, 569.
- 1-Benzyl-2-methylbenzimidazole**, 4:7-di-nitro-6-hydroxy-, synthesis of (MELDOLA), T., 1940.
- Benzylmethylchloromethylcarbinol** (RIEDEL), A., i, 632.
- 1-Benzyl-4-methylcyclohexane-2-one** and its oxime and semicarbazone, and **1-carboxylic acid**, ethyl ester and its *p*-nitro-derivative (KÖTZ and KAYSER), A., i, 667.
- 4-Benzyl-1-methyl-4-cyclohexanol** and its phenylcarbamate and -cyclohexene (SABATIER and MAILHE), A., i, 255.
- Benzyl-1-methylcyclohexyl-3-amine** (WALLACE), A., i, 161.
- 3-Benzyl-1-methylindene** (THIELE and BÜHNER), A., i, 570.
- β -Benzyl- δ -methyl- Δ^{γ} -pentene**, β -hydroxy-, and β -Benzyl- δ -methyl- $\Delta^{\alpha\gamma}$ -pentadiene (v. FELLENBERG), A., i, 567.
- Benzylmethylsulphone** (FROMM and DE SEIXAS PALMA), A., i, 819.
- Benzyl- β -naphthol**, amino-, resolution of (BETTI), A., i, 950.
- α -N-Benzylnaphthylamine**, 4-bromo-2-nitro-, and its acetyl derivative and nitrosoamine (MELDOLA), T., 1436; P., 245.
- 1-Benzoyloxy-2:6-dimethyl-4-pyridone-3:5-dicarboxylic acid**, ethyl ester (PALAZZO), A., i, 701.
- 1-Benzylphthalazine** and its additive salts and 4-iodo- (LIECK), A., i, 50.
- Benzylpiperidines**, hydroxy- (AUWERS and DOMBROWSKI), A., i, 380.
- 4-Benzylpyridinium salts**, 2:3:5:6-tetra-chlorohydroxy- (ZINCKE and HUNKE), A., i, 738.
- Benzylsulphinic acid** and its salts (FROMM and DE SEIXAS PALMA), A., i, 819.
- Benzylsulphonic acid**, anilide, *o*-phenetidine, and *p*-toluidide of (FROMM and DE SEIXAS PALMA), A., i, 819.
- β -Benzyl- β -styrylpropiophenone** and its derivatives, action of a 50 per cent. mixture of glacial acetic and sulphuric acid on (BAUER and BREIT), A., i, 517.
- 1-Benzyltetrahydronaphthalazine** and its additive salts and dibenzoyl derivative (LIECK), A., i, 50.
- Benzyltheophylline** and its additive salts (SCHMIDT and SCHWABE), A., i, 450.
- Benzyl-*o*-toluidine**, *o*-nitro-, crystallography of (JAEGER), A., i, 642.
- Benzyltrimethylammonium hydroxide**, 2:3:5:6-tetrachloro-4-hydroxy-, betaine derivative of (ZINCKE and HUNKE), A., i, 738.
- Benzyluramil** (MÖHLAU and LITTER), A., i, 612.
- Berberine**, constitution of (FALTIS), A., i, 979.
- reactions of (REICHARD), A., ii, 817.
- Berthierite** from Charbes, Vosges, Alsace (UNGEMACH), A., ii, 766.
- Beryl crystals**, some interesting, and their associations (FORB), A., ii, 684.
- Beryllium**. See Glucinum.
- Betaine** and choline, estimation of, in plant tissues (STANĚK), A., ii, 700.
- quantitative separation of (STANĚK), A., ii, 314.
- Bettendorf's reagent**, modified (FERRARO and CAROBIO), A., ii, 490.
- Biazolones**, thio-. See Thiobiazolones.
- Bikhaonitine**, pharmacology of (CASH and DUNSTAN), A., ii, 41.
- Bile**, influence of, on pancreatic ferments (v. FÜRTH and SCHÜTZ), A., ii, 871.
- toxicity of (MELTZER and SALANT), A., ii, 297.

- Bile pigments** (KÜSTER), A., i, 468.
detection of, in urine (GRIMBERT), A., ii, 134.
- Biphenylene-benzyl alcohol**, -*α*-naphthylcarbinol, -phenylethylenone, and -propylene. See 9-Benzylfluorene alcohol, 9-*α*-Naphthylfluorene alcohol, 9-Benzylidenefluorene, and 9-Ethylidenefluorene.
- Biphenylene-methyl- and -ethyl-carbinols.** See 9-Methylfluorene and 9-Ethylfluorene alcohols.
- Birds**, behaviour of strychnine in (MOLITORIS), A., ii, 111.
blood of. See under Blood.
urine of. See under Urine.
- Bisacetylacetone**, tetrathio-, and its oxidation products (FROMM and ZIERSCH), A., i, 930.
- Bisanhydroalloxan-p-phenylenediamine** (MÖHLAU and LITTER), A., i, 613.
- Bisanisylideneacetone** hydrogen penta-iodide (HANTZSCH and DENSTORFF), A., i, 747.
- Biscamphorformeneaminecarboxylic acid** (TINGLE and ROBINSON), A., i, 903.
- Bischofite**, crystalline form and deformation of (MÜGGE), A., ii, 620.
- Bisdianisylideneacetone** hydrogen tri- and penta-iodides (HANTZSCH and DENSTORFF), A., i, 747.
- Bis diazomethane**, action of aldehydes on (RUHEMANN), T., 1272; P., 238.
- iso***Bis diazomethane.** See 1:4-Dihydrotetrazine.
- Bis dibenzylideneacetone** hydrogen penta-iodide (HANTZSCH and DENSTORFF), A., i, 747.
- Bis diethyl-acetyl- and -malonyl-methyl-enediamines** (EINHORN and MAUERMAYER), A., i, 252.
- Bisdimethylacetyleacetone**, tetrathio-, and its oxidation product (FROMM and ZIERSCH), A., i, 931.
- s*-**Bis dimethylhydroresorcyl-*m*- and -*p*-phenylenediamines** and their hydrochlorides (HAAS), T., 392; P., 63.
- Bisdimethylfulvene** (THIELE and BALHORN), A., i, 639.
- Bisdimethylpyrone** hydrogen tribromide (HANTZSCH and DENSTORFF), A., i, 747.
- Bis dinaphthacridine dihydride.** See *iso*-Naphthacridine.
- Bis diphenyleneallene** (STAUDINGER), A., i, 861.
- Bis diphenylene ethane** (STAUDINGER), A., i, 824.
- Bis diphenylenesuccinic acid**, ethyl ester (STAUDINGER), A., i, 825.
- Bismethylacetyleacetone**, trithio-, and its oxidation products (FROMM and ZIERSCH), A., i, 931.
- Bismuth**, atomic weight of (GUTBIER, BIRCKENBACH, and MEHLER), A., ii, 92; (HINRICHES), A., ii, 367.
equilibrium in the system, sulphur and (ATEN), A., ii, 11.
- Bismuth alloys** with aluminium (GWYER), A., ii, 544.
determination of the melting points of, by thermo-electric pyrometers (PÉCHEUX), A., ii, 758.
- with gold (VOGEL), A., ii, 679.
- with magnesium (GRUBE), A., ii, 355.
- with silver (PETRENKO), A., ii, 667.
- with sodium (MATHEWSON), A., ii, 666.
- Bismuth salts** (ALOY and FRÉBAULT), A., ii, 550.
action of polyhydric alcohols on (VANINO and HARTL), A., i, 785.
action of hydrogen peroxide on (MOSER), A., ii, 618.
- Bismuth** borate, nitrite, phosphite, and hypophosphite (VANINO and HARTL), A., i, 786.
- chlorides, compounds of, with bases (VANINO and HARTL), A., i, 574.
- chromates (COX), A., ii, 757.
- peroxides (GUTBIER and BÜNZ), A., ii, 174, 234, 551, 678.
- Bismuth organic salts** (ROSENHEIM and VOGELSANG), A., i, 231.
preparation of, by means of a solution of mannitol bismuth nitrate (VANINO and HARTL), A., i, 785.
- Bismuth**, estimation of, as phosphate and its separation of, from cadmium and copper (MOSER), A., ii, 199.
estimation of, and separation of, from the heavy metals (STÄHLER and SCHARFENBERG; SALKOWSKI and SENDHOFF), A., ii, 55.
- Bismuthite** from Mexico (HEADDEN), A., ii, 38.
- Bis-*α*-naphthaquinone-anil and -oxime** (A. and H. v. EULER), A., i, 370.
- Bisthio-codide and -morphide** (PSCHORR and VOGTHERR), A., i, 877.
- p*-**Bistriazobenzene**, preparation of (SILBERRAD and SMART), T., 170; P., 14.
- Bistrimethylenedipiperidinium chloride** (HÖRLEIN and KNEISEL), A., i, 458.
- Bitumen**, estimation of total soluble, in paving material (AVERY and CORR), A., ii, 584.
- Biurets**, dithio-. (FROMM and SCHNEIDER), A., i, 656.
- Bixin**, the colouring matter of *Bixa orellana* (MARCHLEWSKI and MATEJKO), A., i, 760.

- "**Black alkali**," estimation of, in irrigating waters and soil extracts (SKINNER), A., ii, 251.
- Bleaching liquors**, relation of stability to electrochemical efficiency in the production of (DIGBY), A., ii, 265.
- Bleaching powder**, composition of (v. TIESENHOLT), A., ii, 163.
- Tarugi's view of the formation and composition of (DITZ), A., ii, 26.
- Blood**, human, basicity of, in health and disease (v. RZENTKOWSKI), A., ii, 686.
- composition of the residual nitrogen of (NEUBERG and STRAUSS), A., ii, 461.
- relation of the inorganic salts of, to the contractions of cardiac and skeletal muscle (MARTIN), A., ii, 461.
- the saline contents of, compared with those of other serous fluids (HERTZ), A., ii, 686.
- rate of diffusion of the salts of, into solutions of non-electrolytes, and its bearing on theories of heart rhythm (DENIS), A., ii, 776.
- chemical changes in, after bleeding (v. HOESSLIN), A., ii, 776.
- post-mortem* changes in the (MORAWITZ), A., ii, 291.
- diabetic, hydroxyl-ion concentration of (BENEDICT), A., ii, 876.
- placental, hydroxyl-ions of (SZILI), A., ii, 867.
- reaction of, and its function in nutrition (GAUTRELET), A., ii, 372.
- coagulation of (LOEB), A., ii, 372; (NOLF), A., ii, 460.
- viscosity of (BURTON-OPITZ), A., ii, 372.
- resistance of, to lack of oxygen and a method of increasing it (PACKARD), A., ii, 95.
- action of injection of acid on (SZILI), A., ii, 878.
- physico-chemical investigation on the action of carbon dioxide on (v. KORÁNYI and BENCE), A., ii, 97.
- action of hydrogen peroxide on (VAN ITALLIE), A., ii, 316.
- effects of injection of antitoxic and antibacterial sera on the opsonic power of (YORKE and SMITH), A., ii, 557.
- alcohol in normal (FORD), A., ii, 867.
- amino-acids in (HOWELL), A., ii, 868.
- ammonia in (PICCININI), A., ii, 460.
- carbon monoxide in normal (LÉPINE and BOULUD), A., ii, 867.
- catalases of (VAN ITALLIE), A., ii, 238, 461.
- Blood**, colouring matters (BURACZEWSKI and MARCHLEWSKI), A., i, 779.
- nature of (PIETTRE and VILA), A., i, 55.
- photographic determination of the absorption bands of (LEWIN, MIETHE, and STENGER), A., i, 778.
- Adler's benzidine test for (SCHUMM and WESTPHAL), A., ii, 207.
- glycerol in, and its investigation by Zeisel's iodide method (TANGL and WEISER), A., ii, 868.
- non-coagulable proteid in (HOWELL), A., ii, 868.
- sugar of (LÉPINE and BOULUD), A., ii, 868.
- physico-chemical behaviour of sugar in (MAYER), A., i, 915.
- guaiacum test for (CARLSON), A., ii, 591.
- clinical estimation of the alkalinity of (GAMBLE), A., ii, 296.
- estimation of the volume of, in animals (DOUGLAS), A., ii, 179.
- Blood corpuscles**, classification of (SCOTT), A., ii, 95.
- action of ricin on (PASCUCCI), A., ii, 96.
- the glycuronic acid of (LÉPINE and BOULUD), A., ii, 238.
- red, haemolytic receptors of (MUIR and FERGUSON), A., ii, 96.
- of birds, the nucleus of (PIETTRE and VILA), A., ii, 373.
- Blood-glands** as pathogenic factors in the production of diabetes and obesity (LORAND), A., ii, 296.
- Blood pressure**, effect of, on respiration (GUTHRIE and PIKE), A., ii, 686.
- Blood serum**, solubility of uric acid in (TAYLOR), A., ii, 109.
- nucleo-proteid of (LIEBERMEISTER), A., ii, 776.
- proteids of (PATEIN), A., ii, 622.
- of the cow, albumin from the (MAXIMOWITSCH), A., i, 224.
- of fishes and invertebrates, anti-rennin in the (SELLIER), A., ii, 292.
- precipitation of serum-globulin from, by means of acetic acid (HUISKAMP), A., i, 224.
- Blood vessels**, properties of the muscular tissue of the walls of, with reference to the action of adrenaline (MEYER), A., ii, 777.
- action of saline solutions on the vitality of (HATCHER), A., ii, 103.
- Bocconia cordata*, alkaloids of (SCHLOTTERBECK and BLOOME), A., i, 36.
- Body**, nutritive requirements of the (BENEDICT), A., ii, 689.

- Body fluids**, comparison of conductivity and freezing points of small quantities of, in health and disease (WILSON), A., ii, 687.
- measurement of osmotic pressure in small quantities of (HAMBURGER), A., ii, 687.
- containing proteid, differentiation of (VAN ITALLIE), A., ii, 316.
- juices, examination of (VAN ITALLIE), A., ii, 461.
- Bog moss**, injurious effect of calcium carbonate on (PAUL), A., ii, 575.
- Boiling point**, relation of heat of vaporisation to (BINGHAM), A., ii, 522.
- apparatus, Beckmann's, modification of (RUPP), A., ii, 147.
- measurements of solvents (WALDEN), A., ii, 336.
- Boiling points** of some secondary and tertiary alcohols (HINRICHSEN), A., i, 723.
- of aqueous solutions (JOHNSTON), A., ii, 9.
- of saturated solutions in binary systems in which a compound occurs (ROOZEBOOM), A., ii, 217.
- Boleite** (FRIEDEL), A., ii, 455.
- Bomb**, porcelain-lined (ACREE), A., ii, 304.
- Bonds**, single, the varying values of (WERNER, SCHÖLER, SUMMERER, and ZIPSER), A., i, 436; (HOLLMAN), A., i, 818; (FLÜRSCHEIM), A., ii, 529.
- See also Linkings.
- Bone**, composition of, in osteomalacia (MCCRUDEN), A., ii, 783.
- Bones** of guinea-pigs. See Guinea-pigs.
- Bone marrow extracts**, physiological action of intravenous injection of (BROWN and JOSEPH), A., ii, 474.
- Books**, alchemical, donation of, by Sir Henry E. Roscoe, P., 1, 209.
- Borax**. See Sodium borate.
- Boric acid**. See under Boron.
- Borneol** and its acetate, preparation of, from pinene hydrochloride (HOUBEN), A., i, 440.
- thio-, and its methyl ether (BORSCHÉ and LANGE), A., i, 679, 868; (HOUBEN and DOESCHER), A., i, 970.
- L*-**Borneol** in the oil from the buds of *Pinus maritima* (BELLONI), A., i, 520.
- iso***Borneol**, preparation of camphor from (CHEMISCHE FABRIK AUF AKTIEN), A., i, 28, 194.
- Borneolcarboxylic acid** and its isomeride from the electrolytic reduction of camphorcarboxylic acid (BREDT and BURKHESER), A., i, 680.
- Bornyl alcohol**, constitution of (KONDA-KOFF), A., i, 520.
- chloride. See Pinene hydrochloride.
- iso***Bornyl chloride**. See Camphene hydrochloride.
- Bornylenediamine** (*camphanediamine*) and its diacetyl derivative (DUDEN), A., i, 100.
- Boron**, band spectrum of (KÖHNE), A., ii, 821.
- Boron alloys** with molybdenum (BINET DU JASSONNEIX), A., ii, 677.
- Boron compounds** with manganese, magnetic properties of (BINET DU JASSONNEIX), A., ii, 520.
- Boron carbide**, preparation of, in the electric furnace (TUCKER and BLISS), A., ii, 439.
- trifluoride, melting and boiling points of (MOISSAN), A., ii, 535.
- Boric acid**, detection of (FENDLER), A., ii, 251; (VELARDI; CASTEL-LANA), A., ii, 491.
- detection and estimation of, in foods (LOW), A., ii, 629.
- approximate estimation of (CRIBB and ARNAUD), A., ii, 394.
- estimation of, alone and in presence of phosphoric acid (MANNING and LANG), A., ii, 491.
- Boron sulphide**, preparation of, from ferroboron (HOFFMANN), A., ii, 745.
- Boronatrocacite**, limit of existence and decomposition of (VAN'T HOFF), A., ii, 619.
- Boronium salts** (DILTHEY, EDUARDOFF, and SCHUMACHER), A., i, 342.
- Boron-ultramarine**, Knapp's (HOFFMANN), A., ii, 545.
- Botryogen** from Vosges, Alsace (UNGEMACH), A., ii, 766.
- Bournonite** from Sarrabus, Sardinia (MILLOSEVICH), A., ii, 456.
- Boxwood**, West African, physiological properties of (GIBSON), A., ii, 187.
- Brain**, preparation of cholesterol from (ROSENHEIM), A., ii, 240; (TEBB), A., ii, 241.
- Brandy**, influence of oxidation of ethyl alcohol on the maturing of (TRILLAT), A., i, 476.
- Brass**, use of chloric acid in the estimation of tin in (BERNARD), A., ii, 305.
- Brasses**, special (GUILLERET), A., ii, 357.
- Brazilein**, derivatives of (ENGELS and PERKIN), P., 132.
- Brazilin** and haematoxylin (ENGELS and PERKIN), P., 132; (PERKIN and ROBINSON), P., 160; (HERZIG and POLLAK), A., i, 198; (HERZIG, POLLAK, FISCHER, KLUGER, and MAYRHOFER), A., i, 871.

- Brazilin**, acetyl derivatives of (HERZIG, POLLAK, and KLUGER), A., i, 872.
- Breathing**, Cheyne-Stokes (PEMBREY, BEDDARD, and FRENCH), A., ii, 237.
- Breunerite** from Avigliana (PIOLTI), A., ii, 864.
- Brine**, chemical and physical action of, on soil (HISINK), A., ii, 701.
- Bronchite**. See Copper sulphate, basic.
- Bromides**. See under Bromine.
- Bromine**, atomic weight of (BAXTER), A., ii, 740.
- mixture of, with iodine (MEERUM TERWOGT), A., ii, 15.
- Bromine chloride**, existence of (LEBEAU), A., ii, 843.
- fluoride** (PRIDEAUX), T., 317; P., 19; (LEBEAU), A., ii, 80.
- Hydrobromic acid (*hydrogen bromide*)**, preparation of, from its elements (HOPPE), A., ii, 605.
- production of, and its action on primary and secondary saturated alcohols (FOURNIER), A., i, 787.
- Bromides**, behaviour of, in the body (v. Wyss), A., ii, 876.
- Bromous acid**, existence of (RICHARDS), A., ii, 155.
- Bromine and chlorine**, separation of, in acid solution by hydrogen peroxide (JANNASCH and ZIMMERMAN), A., ii, 194; (JANNASCH), A., ii, 894.
- See also Halogens.
- Bromoform**, decomposition of, under the influence of light and air (SCHOORL and VAN DEN BERG), A., i, 474.
- chloroform, and iodoform, comparison of the decomposition of, under the influence of light (SCHOORL and VAN DEN BERG), A., i, 474.
- pyrogenic behaviour of (JOIST and LÖB), A., i, 130.
- Bromous acid**. See under Bromine.
- Bronze**, use of chloric acid in the estimation of tin in (BERNARD), A., ii, 305.
- Bronzes**, electrolytic corrosion of (CURRY), A., ii, 756.
- electrolytic precipitation of (CURRY), A., ii, 862.
- Brown-spar** from the Sylvester Mine, Vosges, Alsace (UNGEMACH), A., ii, 766.
- Brucine** and strychnine, separation of (REYNOLDS and SUTCLIFFE), A., ii, 638.
- Bubbles**, colloidal. See Colloidal bubbles.
- Buchu-camphor**. See Diosphenol.
- Buckwheat** (HASELHOFF), A., ii, 301.
- Bullets**, made about 1641, recently discovered in Durham Castle, composition of (SILBERRAD and SIMPSON), P., 172.
- Bunsen flame** (ALLNER), A., ii, 441.
- Burette holder**, new (LINCOLN), A., ii, 47.
- Burner**, new, for spectroscopic use (RIESENFELD and WOHLERS), A., ii, 593, 804.
- Butadiene compounds** (STOBBE, LENZNER, and WAHL), A., i, 22; (STOBBE and LEUNER), A., i, 22, 183; (STOBBE and KÜLLENBERG), A., i, 91, 92; (STOBBE and ECKERT), A., i, 101; (STOBBE, BADENHAUSEN, BENARY, KAUTZSCH, LENZNER, and NETTEL), A., i, 278; (STOBBE and BADENHAUSEN), A., i, 279.
- Butane, $\beta\gamma$ -dihydroxy-**. See $\beta\gamma$ -Butylene glycol.
- nitro, formation of (RAY and NEOGI), T., 1902; P., 260.
- Butanedicarboxylic acids**. See Adipic acid, Dimethylsuccinic acids, Methyl-ethylmalonic acid, and β -Methyl-glutaric acid.
- iso***Butanehexacarboxylic acid** and its ethyl ester and penta-anilide (COUTELLE), A., i, 139.
- Butanepentacarboxylic acid**. See Di-carboxymethyltricarballylic acid.
- cyclo***Butane series**, synthesis of a ketone of the (WEDEKIND, WEISSWANGE, and ERDMANN), A., i, 437.
- Butane- $\alpha\beta\delta$ -tricarboxylic acid** and its ethyl ester (KAY and PERKIN), T., 1642; P., 269.
- iso***Butanetricarboxylic acid** and its barium salt and methyl ester (COUTELLE), A., i, 139.
- Butanetricarboxylic acids**. See also α -Methyltricarballylic acids.
- Butene-2:3 diol**, diacetyl derivative (BOUVEAULT and LOCQUIN), A., i, 782.
- Butenoic acids**. See Crotonic acids.
- iso***Butoxide**, sodium, action of, on camphor, at a high temperature (HALLER and MINGUIN), A., i, 594.
- Butter**, examination of, as regards its purity (LÜHRIG), A., ii, 205.
- detection of cocoanut oil in (WIJSMAN and REIJST), A., ii, 402; (JEAN), A., ii, 403; (THORP), A., ii, 588.
- detection of foreign colouring matters in (FENDLER), A., ii, 58.
- estimation of fat and water in (FAHRION), A., ii, 402.
- estimation of water in (ASCHMAN and AREND), A., ii, 814.
- See also Karité butter.
- Butter adulterant**, new, composition of (RICHMOND), A., ii, 588.
- iso***Butyl alcohol**, β -chloro- (HENRY), A., i, 228.

- sec.-Butyl bromide**, preparation of (FREUNDLER and DAMOND), A., i, 2.
- a-tert.-Butylacetic acid**, α -amino-, copper salt, and its nitrile, hydrochloride of (v. GULEWITSCH and WASMUS), A., i, 410.
- ψ -Butylacetone** and its semicarbazone (COURTOT), A., i, 926.
- iso-Butylamine**, *N*-formyl derivative (VAN ROMBURGH), A., i, 3.
- tert.-Butylbenzene**, halogen and halogen-nitro-derivatives of (BÖDTKER), A., i, 942.
- i-sec.-Butylbenzenesulphonic acid** and its amide, anilide, chloride, and alkaloidal salts (KLAGES), A., i, 568.
- γ -iso-Butylbutyrolactone**, $\alpha\beta$ -dihydroxy-, and its *p*-nitrobenzoate (THIELE and WEDEMANN), A., i, 726.
- iso-Butyl-camphol** and its acetate and -camphor and its isonitrosohydroxy-derivative (HALLER and MINGUIN), A., i, 594.
- iso-Butylcyano-glutaconimide**, transformations of the quinine salt of (ZUBLENA), A., i, 983.
- Butylene**, dihydroxy-. See Butene-2,3-diol.
- iso-Butylene**, addition of hypochlorous acid to (MICHAEL and LEIGHTON), A., i, 551.
- reaction of iodine with (POGORŽELSKY), A., i, 129.
- iso-Butylene chlorhydrin** (MICHAEL and LEIGHTON), A., i, 551, 781.
- $\beta\gamma$ -Butylene glycol**, production of (HARDEN and WALPOLE), A., ii, 380.
- iso-Butylene oxide** and its reaction with hydrogen chloride (HENRY), A., i, 228; (MICHAEL and LEIGHTON), A., i, 781.
- Butylenedicarboxylic acids**. See β -Methylglutaconic acids.
- Butylenepentacarboxylic acid**. See $\alpha\alpha$ -Dicarboxy- α -methylaconitic acid.
- Butylenetricarboxylic acids**. See Methyalaconitic acids.
- iso-Butylhydantoic acid** (LIPPICH), A., i, 813.
- 1-iso-Butylhydrocotarnine** and its additive salts (FREUND and REITZ), A., i, 601.
- Butylidenebis-1-phenyl-3-methylpyrazolone** and its anhydro-lase (MICHAELES and ZILG), A., i, 218.
- iso-Butylidene-camphor** and its nitrosate (HALLER and MINGUIN), A., i, 594.
- iso-Butylmalonic acid**, α -bromo-(FISCHER and SCHMITZ), A., i, 182.
- 1-iso-Butylphthalazine** and its additive salts and 4-iodo- (WÖLBLING), A., i, 48.
- 1-iso-Butylphthalimidine** (WÖLBLING), A., i, 48.
- 2-Butylpyrrolidine** and its derivatives (BLAISE and HOUILLON), A., i, 693.
- 2-Butylthiophen**, influence of light and heat on the chlorination and bromination of (OPOLSKI), A., i, 33.
- iso-Butyl vinyl ketone** (BLAISE and MAIRE), A., i, 142.
- Butyraldehyde**, γ -amino-, and its *N*-formyl derivative and their diethyl-acetals (WOIL, SCHÄFER, and THIELE), A., i, 105.
- Butyric acid**, $\alpha\beta$ -diamino-, synthesis of, and its compound with phenylcarbimide, and picrate, and β -amino- α -hydroxy- (NEUBERG and FEDERER), A., i, 805.
- β -cyano- β -hydroxy-, ethyl ester (BUCHERER and GROLÉE), A., i, 405.
- iso-Butyric acid**, α -amino-, and its amide, hydrochloride of (v. GULEWITSCH and WASMUS), A., i, 410.
- Butyroins**, *n*- and *iso*-, and their oximes and the acetyl derivative of the *n*-compound (BOUVEAULT and LOCQUIN), A., i, 783.
- iso-Butyronitrile**, α -amino-, and its additive salts and benzoyl derivative (v. GULEWITSCH and WASMUS), A., i, 410.
- hydroxy- (ULTÉE), A., i, 5.
- α -hydroxy- (BUCHERER and GROLÉE), A., i, 405.
- Butyrylcarbamide**, α -cyano- (JOHNSON and JOHNS), A., i, 456.
- iso-Butyrylphenylhydrazine** (PONZIO), A., i, 66.

C.

- Cabrerite**, crystalline form of (SACHS), A., ii, 369.
- Cacodyl**, bromo-, hydrobromide of, and iodo-, hydriodide of (DEHN and WILCOX), A., i, 150.
- Cadmium**, atomic weight of (BAXTER, HINES, and FREVERT), A., ii, 541.
- combustion of (MANCHOT), A., ii, 285.
- Cadmium alloys** with antimony (TREITSCHKE), A., ii, 763.
- with copper (SAHMEN), A., ii, 543.
- with gold (VOGEL), A., ii, 288.
- with magnesium (GRUBE), A., ii, 355.
- with sodium (MATHEWSON), A., ii, 666.
- with zinc and lead (NOVAK), A., ii, 26.
- Cadmium compounds** with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 629, 630.

- Cadmium compounds** with thiocarbamide (ROSENHEIM and MEYER), A., i, 408.
Cadmium carbonate, precipitated basic (KOHN), A., ii, 754.
 basic. See Otavite.
 iodide, compounds of, with mercuric iodide, isomorphism of (DUBOIN), A., ii, 544.
 oxide, behaviour of, at high temperatures (DOELTZ and GRAUMANN), A., ii, 671.
Cadmium, estimation of (BAUBIGNY), A., ii, 307, 493; (GOLDSCHMIDT), A., ii, 581.
 estimation of, by means of the rotating cathode (FLORA), A., ii, 52, 127.
 use of the rotating anode for the estimation of, taken as the chloride (FLORA), A., ii, 52.
 estimation of, as oxide (FLORA), A., ii, 127.
 separation of, from bismuth (MOSER), A., ii, 199.
Cæcum, digestion of cellulose in, and enzymes of, the (SCHEUNERT), A., ii, 463.
Cæsium, direct oxidation of (RENGADE), A., ii, 444.
Cæsium chlorides and sulphates, thermochemistry of (DE FORCRAND), A., ii, 654.
 chromates (FRAPRIE), A., ii, 539.
 hydroxide and its hydrate (DE FORCRAND), A., ii, 445.
 polyiodides (ABEGG and HAMBURGER), A., ii, 748.
 oxide (RENGADE), A., ii, 850.
dioxide, sesquioxide, and peroxide (RENGADE), A., ii, 851.
peroxide, properties of (RENGADE), A., ii, 444, 851.
 iron selenium alum (RONCAGLIOLA), A., ii, 233.
 sulphides (BILTZ and WILKE-DÖRFURT), A., ii, 283, 611.
Cæsium-ammonium, action of oxygen on (RENGADE), A., ii, 851.
Caffeine, affinity constants of (WOOD), T., 1842; P., 271.
 conversion of, into paraxanthine, theophylline, and xanthine (FISCHER and ACH), A., i, 219.
 derivatives, and reactions of its glyoxaline nucleus (BRISSEMORET), A., i, 600.
 estimation of, by means of the immersion refractometer (HANUŠ and CHOCENSKÝ), A., ii, 407.
 estimation of, in presence of acetanilide (PUCKNER), A., ii, 60.
 estimation of, in raw coffee (WOLFF), A., ii, 507.
Caffeine, chloro-derivatives (FISCHER and ACH), A., i, 219.
Calcimeter, new (PASSERINI), A., ii, 902.
Calcite, phosphorescent (HEADDEN), A., ii, 680.
 and dolomite, reaction for distinguishing (CORNUT), A., ii, 804.
Calcium, electrolytic (GOODWIN), A., ii, 25.
 preparation of (TUCKER and WHITNEY), A., ii, 162.
 properties of (DOERMER), A., ii, 162; (OHMANN), A., ii, 228.
 structure of (LARSEN), A., ii, 25; (DOERMER), A., ii, 540.
 lecture experiments with (OHMANN), A., ii, 446.
 action of, on iron (QUASEBART), A., ii, 229; (STOCKEM), A., ii, 285; (WATTS), A., ii, 759.
 of human milk (SIKES), A., ii, 874.
 and magnesium, metabolism of (GOITEIN), A., ii, 870.
Calcium alloys (STOCKEM), A., ii, 285.
 with lead (HACKSPILL), A., ii, 671.
Calcium compounds, occurrence of, up to 25° (VAN'T Hoff), A., ii, 36.
 with thiocarbamide (ROSENHEIM and MEYER), A., i, 408.
 manurial value of, for cereals (LAZZAREI), A., ii, 892.
Calcium salts, relative solubility of certain sparingly soluble barium salts and (FOOTE and MENGE), A., ii, 353.
 activation of pancreatic juice by (DELEZENNE), A., ii, 99, 100.
 and magnesium salts, influence of, on bacterial actions (MACHIDA), A., ii, 380.
Calcium sub-salts, attempts to prepare (GUNTZ and BASSETT), A., ii, 540.
Calcium borates and bromoborates (OUVRARD), A., ii, 86.
 monoborates, reciprocal transformation of (VAN'T Hoff and BEHN), A., ii, 668.
Tricalcium pentaborate, formation of (VAN'T Hoff), A., ii, 619.
Calcium borostannate, preparation of (OUVRARD), A., ii, 669.
 carbonate, behaviour of, at high temperatures (BOEKER), A., ii, 753.
 reduction of, lecture experiment (KÜSPERT), A., ii, 661.
 injurious effect of, on bog moss (PAUL), A., ii, 575.
 chloride, formation of (VAN'T Hoff, FARUP, and D'ANS), A., ii, 236.
 fluoride, action of, on phenogams (ASÖ), A., ii, 888.

- Calcium** hydride, gaseous, presence of a, in technical acetylene (HOFF-MEISTER), A., ii, 162.
 commercial preparation of (JAUBERT), A., ii, 352.
 iodide, double salts of mercuric iodide with (DUBOIN), A., ii, 231, 286.
 nitrate, conductivity and viscosity of solutions of, in mixtures of acetone with methyl alcohol, ethyl alcohol, and water (JONES and BINGHAM), A., ii, 66.
 oxide (*lime*), physical properties of (DAY and SHEPHERD), A., ii, 771.
 gypsum, and water, composition of mixtures of, at 25° (CAMERON and BELL), A., ii, 751.
 and magnesia as manures for flax and spinach (NAMIKAWA), A., ii, 892.
 peroxides and their properties and applications (v. FOREGGER and PHILIPP), A., ii, 352.
 phosphates (CAMERON and SEIDELL), A., ii, 163; (CAMERON and BELL), A., ii, 164, 752.
 hydrogen orthophosphates, action of ammonia gas on (BASSETT), P., 315.
 hydrates of (BASSETT), P., 315.
 metasilicate, polymorphic forms of (ALLEN and WHITE; WRIGHT), A., ii, 683; (DAY and SHEPHERD), A., ii, 770.
 orthosilicate, polymorphic forms of (DAY and SHEPHERD), A., ii, 771.
 sulphate, solubility of, in phosphoric acid solutions (TABER), A., ii, 852.
 solution of, in salt water (ARTH and CRÉTIEN), A., ii, 853.
 See also Gypsum and Plaster of Paris.
 ammonium sulphate. See Ammonium syngenite.
Calcium organic compounds, insoluble, in wood charcoal (BERTHELOT), A., ii, 117.
 cyanamide as manure. See under Manure.
Calcium, new qualitative test for (FLANDERS), A., ii, 901.
 estimation of, gravimetrically (BRUNCK), A., ii, 307.
 estimation of, in hydrochloric acid soil extracts (NEUBAUER), A., ii, 52; (HISSINK), A., ii, 396.
 separation of, from barium (SKRABAL and NEUSTADTL), A., ii, 126; (SKRABAL and AETMANN), A., ii, 804.
Calcium chloride tube, new form of (HILL), P., 87.
- Calespar**, ignition of, lecture experiment (KÜSPERT), A., ii, 661.
Calliphora, intermediary metabolism in the anaerobic stage of the pupae of (WEINLAND), A., ii, 560.
Calomel. See Mercurous chloride under Mercury.
Calomelanen (ZOPF), A., i, 871.
Calorimeter and **Calorimetry**. See under Thermochemistry.
Calumba root, alkaloids of (GADAMER; GÜNZEL), A., i, 976.
Calycanthine from *Calycanthus glaucus* and its additive salts, nitrosoamine, and sulphonie acid (GORDIN), A., i, 35.
Camphanecarboxylic acid, β -hydroxy. See Borneolcarboxylic acid.
Camphanediamine. See Bornylenediamine.
Camphane-hydrate-sulphonic acid and chloride (BORSCHE and LANGE), A., i, 680.
Camphane-2-sulphinic acid (BORSCHE and LANGE), A., i, 679.
Camphane-2-sulphonic acid, amide and bromide of (BORSCHE and LANGE), A., i, 679.
Camphenal. See *p*-Ethoxyphenylcamphorylimide.
Camphene, formula of (HESSE), A., i, 376.
 action of hypochlorous acid on (SLAWIŃSKI), A., i, 28.
 hydrochloride (*isobornyl chloride*), (HESSE), A., i, 375.
Camphenecarboxylic acid. See Dehydroborneolcarboxylic acid.
*iso***Camphenilanaldehyde** (SLAWIŃSKI), A., i, 29.
Camphenilone, action of sodamide on (SEMMLER), A., i, 681.
Camphidones, α - and β -, and their nitroso-derivatives (TAFEL and BUBLITZ), A., i, 43.
 α -**Campholyl alcohol** and its pyruvate and semicarbazone (BLANC), A., i, 174.
 β -**Campholytic acid**. See *iso*Lauronolic acid.
Camphor, preparation of, from isoborneol (CHEMISCHE FABRIK AUF AKTIEN), A., i, 28, 194.
 artificial production of, from turpentine oil (SCHMIDT), A., i, 868.
 and its derivatives, constitution of (BREDT and BURKHEISER), A., i, 680.
 electrolytic oxidation of (LAW), T., 1452.
 action of sodium isobutoxide or propoxide on, at a high temperature (HALLER and MINGUIN), A., i, 594.

- Camphor** derivatives, synthesis of (BLANC), A., i, 523.
chemical constitution of, in relation to colour (FORSTER), T., 225; P., 31.
- Camphor**, stereoisomeric halogen derivatives (LOWRY), T., 1033; P., 70.
thio- (HOUBEN and DOESCHER), A., i, 970.
- i*-**Camphoranic acid** and its anhydride (NOYES and DOUGHTY), A., i, 5.
- Camphorcarboxylic acid**, electrolytic reduction of (BRENT and BURKHEISER), A., i, 680.
- Camphoric acid** (NOYES and TAVEAU), A., i, 397.
experiments on the synthesis of (PERKIN and THORPE), T., 778, 795.
- i*-**Camphoric acid**, synthesis of (PERKIN and THORPE), T., 799.
- Camphorimide**, copper sodium salt (LEY and WERNER), A., i, 562.
- Camphoronic acid**, derivatives of (NOYES and DOUGHTY), A., i, 4.
- Camphoroxalic acid**, constitution of, and action of amines on (TINGLE and ROBINSON), A., i, 902.
action of hydrazine, phenylhydrazine and its *p*-bromo-derivative on (TINGLE and ROBINSON), A., i, 903.
hydrazine salt (TINGLE and ROBINSON), A., i, 903.
- Camphorphenylhydrazone** picrate, preparation of (CIUSA and AGOSTINELLI), A., i, 892.
- Camphorsulphonic acids**, derivatives of, stereoisomeric (LOWRY and MAGSON), T., 1042; P., 145.
- Camphoryl- ψ -carbamide**, *N*- dibromo- and *N*- dichloro- (FORSTER and GROSSMANN), T., 402; P., 74.
- Camphorylmethyl- ψ -carbamide**, *N*-bromo- and *N*-chloro- (FORSTER and GROSSMANN), T., 402; P., 74.
- Camphyl disulphide** and its derivatives (BORSCHE and LANGE), A., i, 679.
hydrosulphide. See Borneol, thio-methyl sulphide. See Borneol, thio-methyl ether.
- Camphylidimethylsulphonium hydroxide** and iodide (BORSCHE and LANGE), A., i, 680.
- Camphylmethylsulphone** (BORSCHE and LANGE), A., i, 679.
- Camphylphenyl-** See Phenylcamphyl.
- Camphylpyrazole** and its **carboxylic acid** and its ethyl ester (TINGLE and ROBINSON), A., i, 902.
- Canal rays**. See under Photochemistry.
- Cancer**, hydrochloric acid in (PALMER), A., ii, 786; (COPEMAN and HAKE), A., ii, 875.
acidity of the gastric contents in (MOORE, KELLY, and ROAF), A., ii, 565.
hemalkalimetry in (MOORE and WILSON), A., ii, 565.
of the stomach, lactic acid formation in (SICK), A., ii, 565.
- Cane molasses**. See under Molasses.
sugar. See Sucrose.
- Caneila alba**, carbohydrates in the bark of (HANUŠ and BIEN), A., ii, 883.
- Caoutchouc** (*indiarubber*), action of atmospheric oxygen on (HERBST), A., i, 196.
and gutta-percha hydrocarbons and their oxonides (HARRIES), A., i, 30.
vulcanised, estimation of antimony in (WAGNER), A., ii, 583.
See also Rubber.
- Capillary**, electro-. See Electro-capillary.
layer parallel to its surface, pressure in the (BAKKER), A., ii, 655.
phenomena, rule for, analogous with Trouton's rule for the latent heat of evaporation (KISTIAKOWSKY), A., ii, 655.
tubes, flow of liquids through (BELL and CAMERON), A., ii, 833.
determination of melting points in (WEGSCHEIDER), A., ii, 8.
- Capsicum annuum**, fruit of (NESTLER), A., ii, 640.
- Caramel**, presence of formaldehyde in (TRILLAT), A., ii, 235, 401.
- Carbacetooacetic acid**, ethyl ester. See isoDehydroacetic acid, ethyl ester.
- Carbamic acid**, salts (MACLEOD and HASKINS), A., ii, 377.
ammonium salt, formation of (BRINER), A., ii, 529.
- Carbamide**, action of, on compounds of • cyanocetic acid (FRERICHS and HARTWIG), A., i, 74, 163.
action of, on ethyl glyoxylate (SIMON and CHAVANNE), A., i, 636.
action of sodium hypobromite on (CORRADI), A., ii, 505.
and its alkyl derivatives, conversion of, in pyrimidine bases (MERCK), A., i, 537, 703, 715.
See also Urea.
- Carbamide**, *isohydroxy-*, action of, on benzaldehyde (CONDUCHE), A., i, 593.
thio-. See Thiocarbamide.
- Carbamides**, acyl derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 634.

Carbamidoketo-. See Ketocarbamido.
Carbamidopyrimidines, formation of purines from (JOHNSON and McCOLLUM), A., i, 769.
***o*-Carbaminebenzenesulphonic acid**, salts and chloride of (BRADSHAW), A., i, 359.
Carbaminooacetic acid, barium salt (SIEGFRIED), A., i, 144.
Carbamoglycollic acid, dithio-, and its anhydride (HOLMBERG), A., i, 811.
Carbamyleamphoformenaminecarboxylic acid and its ethyl ester (TINGLE and ROBINSON), A., i, 902.
 γ -Carbethoxy- γ -acetyl- β -alkyl- and - β -phenyl-butynitriles and -butynitrile- α -amides (GUARESCHI), A., i, 800.
 γ -Carbethoxy- γ -acetylbutynitrile- α -amide (GUARESCHI), A., i, 801.
Carbethoxyaminoacetonitrile (JOHNSON and McCOLLUM), A., i, 157.
Carbethoxyaminocoumarans, 1- and 2- (STOERMER and KÖNIG), A., i, 200.
Carbethoxyl isocyanate. See Carbimide-carboxylic acid, ethyl ester.
Carbethoxy-l-leucyl-l-leucine (FISCHER), A., i, 810.
Carbethoxythioglycollic acid and its potassium salt (BIILMANN), A., i, 626.
Carbimidecarboxylic acid, ethyl ester (*carbethoxyl isocyanate*) (DIELS and WOLF), A., i, 237.
Carbimides, optically active (PICKARD, LITTLEBURY, and NEVILLE), T., 93 ; (PICKARD and LITTLEBURY), T., 467, 1254 ; P., 71, 238.
 thio-. See Thiocabimides.
Carbihionic acids (HOUBEN and POHL), A., i, 847.
 α -Carbo-benzoxy- b -phenylthiocarbamide (DIXON), T., 904 ; P., 147.
Carbodiphenylimide, hydrocyano-, transformations of, hydrocyanodi-p-nitro-, and nitrosocyanato- (SCHULTZ, ROHDE, and HERZOG), A., i, 890.
Carbohydrates of cocoa (MAURENBRECHER and TOLLENS), A., ii, 884.
 from lichens (TOLLENS), A., i, 560 ; (ULANDER and TOLLENS), A., ii, 193.
 in spices, researches on the (HANUŠ and BIEN), A., ii, 883.
 solubility and specific rotatory power of, in pyridine and other solvents (HOLTY), A., ii, 61.
 rôle of cellular elements in the digestion of, by intestinal juice (BIERRY and FROUIN), A., ii, 559.
 rôle of the pancreas in the digestion and absorption of (LOMBROSO), A., ii, 292.

Carbohydrates, nitrogenous, a new group of (OFFER), A., i, 811.
 behaviour of Nessler's reagent towards some (ROSENTHALER), A., ii, 911.
 See also Sugars.
Carbomethoxyl. See Carboxymethyl.
Carbon, three modifications of (SCHENCK), A., ii, 363.
 emission of, in certain flames (AMERIO), A., ii, 440.
 relative vapour tensions of the three modifications of (SMITS), A., ii, 71.
 rate of action of oxygen, carbon dioxide, and water vapour on (FARUP), A., ii, 745.
 occlusion of hydrogen and carbon dioxide by (TRAVERS), A., ii, 730.
 solubility of, in calcium carbide (KAHN), A., ii, 538.
 influence of phosphorus on the solubility of, in iron (FETTWEIS), A., ii, 232.
 direct union of, with hydrogen at high temperatures (PRING and HUTTON), T., 1591 ; P., 260.
Carbon alloys with iron of high carbon content (WÜST), A., ii, 232.
 equilibrium diagram of (CHARPY), A., ii, 31.
 with iron and copper (PFEIFFER), A., ii, 358.
Carbon compounds with silicon, volatility in (HENRY), A., i, 549.
Carbon tetrabromide, properties of (PONZIO), A., i, 482.
 action of, on selenium (v. BARTAL), A., ii, 746.
tetrachloride, some uses of, in analysis (GRAEFE), A., ii, 201.
 oxides, temperatures of formation of (MANVILLE), A., ii, 439.
suboxide (DIELS and WOLF ; BERTHELOT), A., ii, 227.
 constitution of (MICHAEL), A., ii, 442.
suboxides (BERTHELOT), A., ii, 227.
monoxide, coefficient of expansion of (JAQUEROD and PERROT), A., ii, 34.
 action of, at a red heat on water vapour (GAUTIER), A., ii, 538.
 in normal blood (LÉPINE and BOULUP), A., ii, 867.
 fate of, in the animal organism (WACHHOLTZ, WORGITZKI, and WEISS), A., ii, 561.
 estimation of small quantities of (NOWICKI), A., ii, 395.
 estimation of, in air (JAUBERT ; GAUTIER), A., ii, 125 ; (LÉVY and PÉCOUL), A., ii, 197.

- Carbon monoxide**, some difficulties in the estimation of, in gaseous mixtures (GAUTIER and CLAUSMANN), A., ii, 251.
dioxide, preparation of, lecture experiment (KÜSPERT), A., ii, 661.
 action of ultra-violet light on moist and dry (CHADWICK, RAMSBOTTOM, and CHAPMAN), P., 23.
 decomposition of, by the point discharge (NODA and WARBURG), A., ii, 144.
 photolytic decomposition of, *in vitro* (USHER and PRIESTLEY), A., ii, 881.
 dissociation of, at high temperatures (LANGMUIR), A., ii, 848.
 liquid, examination of (WERDER), A., ii, 900.
 as solvent (BÜCHNER), A., ii, 274.
 coefficient of expansion of (JAQUE-ROD and PERROT), A., ii, 34.
 diffusion of, through a colloidal membrane (AMAR), A., ii, 337.
 rate of action of, on carbon (FARUP), A., ii, 745.
 action of hydrogen on (GAUTIER), A., ii, 538.
 union of, with amphoteric amino-substances (SIEGFRIED), A., i, 324.
 influence of, under high pressure on the bacteria in water and in milk (HOFFMANN), A., i, 695.
 physico-chemical investigation on the action of, on blood (v. KORÁNYI and BENCE), A., ii, 97.
 assimilation of, by chrysalides of Lepidoptera (v. LINDEN), A., ii, 95.
 action of, on the latent life of some dried grains (BECQUEREL), A., ii, 385.
 assimilation of (LÖB), A., ii, 43, 324, 791.
 estimation of (HOLTSCHMIDT), A., ii, 580; (McFARLANE and GREGORY), A., ii, 802; (REBENSTORFF), A., ii, 901.
 modification of Scheibler's apparatus for the estimation of, in carbonates (COLLINS), A., ii, 630.
 estimation of, in waters (BRUHNS), A., ii, 706.
diselenide (v. BARTAL), A., ii, 848.
disulphide, slow combustion of (SMITH), T., 142.
 action of, on soil (WILFARTH, RÖMER, and WIMMER), A., ii, 485; (HEINZE), A., ii, 486.
 estimation of, in benzene (STAVOR-
 INUS), A., ii, 580.
- Carbon**, estimation of (MCFARLANE and GREGORY), A., ii, 802.
 and sulphur, apparatus for the estimation of (WILHELMI), A., ii, 390.
 estimation of, in iron and steel. See under Iron.
 estimation of, in soils (HALL, MILLER, and MARMU), T., 595; P., 103.
 See also Charcoal, Diamond, Graphite, and Lamplblack.
Carbon compounds. See Organic compounds.
Carbonates, electrolytic reduction of (EHRENFIELD), A., ii, 83.
 basic (DAVIS), A., ii, 670.
Carbonic acid and its salts, thio-. See Thiocarbonic acid.
Carbonyl bromide (v. BARTAL), A., i, 731.
Carbonylferrocyanic acid, heat of formation of (MULLER), A., ii, 525.
Carbonyl group, the chemical reactivity of the (STEWART and BALY), T., 489, 618; P., 33, 85.
 estimation of the, in aldehydes, ketones, &c. (SMITH), A., ii, 312.
Carborundum, measurement of temperature in the formation of (TUCKER and LAMPEN), A., ii, 610.
Caro's acid, constitution of (PRICE), T., 53.
Carostyryl as a by-product in a molasses furnace (v. LIPPMANN), A., i, 38.
Carboxybenzofulveneacetic acid and its reduction (THIELE and RÜDIGER), A., i, 587.
 β -Carboxy- α -dimethylcrotonic acid, γ -cyano-, ethyl ester, formation of (ROGERSON and THORPE), T., 649.
Carboxyethyl-. See Carbethoxy-
Carboxylic acids, syntheses of (Houben), A., i, 21.
 behaviour of, towards phenylcarbimide (DIECKMANN and BREEST), A., i, 832.
 aromatic, electrolytic reduction of (METTLER), A., i, 851.
 $\alpha\beta$ -unsaturated, esters, reduction of, by aluminium amalgam (HENLE), A., i, 669.
 γ -Carboxymethyl- γ -acetyl- β -phenyl- and - β -propyl-butyroneitrile- α -amides (GUARESCHI), A., i, 801.
Carboxymethylserine, ethyl ester (LEUCHS and GEIGER), A., i, 806.
Carboxymethylidithiourethane. See Carbamoglycollic acid, dithio-
2-Carboxyphenyl dichloro-orthophosphate, 6-chloro-2-chloro- (ANSCHÜTZ and ANSPACH), A., i, 503.

- 2-Carboxyphenyl** dihydrogen phosphate, 4-chloro-, and dichloro-orthophosphate, 4-chloro-2-chloro-(ANSCHÜTZ and ANSPACH), A., i, 503.
metaphosphate and dichloro-orthophosphate, chloro- (ANSCHÜTZ), A., i, 501.
- α -o-Carboxyphenyl-cinnamic** and **3:4-dimethoxy**cinnamic acids, 2-amino- and 2-nitro- (PSCHORR and TAPPEN), A., i, 850.
- o-Carboxyphenylglyceryltropeine**, lactone of (JOWETT and PYMAN), P., 317.
- μ -Carboxyphenyl-1:2-naphthiminazole-7-sulphonic acid**, 5-hydroxy- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 900.
- o-Carboxyphenylthioglycollic acid** and its esters (FRIEDLÄNDER), A., i, 378.
- 3-Carboxy-o-tolyl** dichloro-orthophosphate, chloro-, and dihydrogen phosphate (ANSCHÜTZ and ANSPACH), A., i, 506.
- 2-Carboxy-p-tolyl** metaphosphate and dichloro-orthophosphate, chloro-, and dihydrogen phosphate (ANSCHÜTZ and SCHROEDER), A., i, 507.
- 4-Carboxy-3-tolyl** metaphosphate and dichloro-orthophosphate, chloro-, and dihydrogen phosphate (ANSCHÜTZ and SCHROEDER), A., i, 508.
- Carlina acqualis L.* (carline thistle), oil of (SEMMLER), A., i, 297.
- Carlinene**, **Carlina oil**, and **Carlina oxide** (SEMMLER), A., i, 297.
- Carnitine** from meat extracts (KRIMBERG), A., ii, 872.
- Carnitine**, **Carnosine**, and **Methylguanidine** in flesh (KRIMBERG), A., ii, 781.
- Carnivorous metabolism.** See under Metabolism.
- Carotin**, assimilative function of, and the second assimilative maximum at F. (KOHL), A., ii, 792.
- Carvacrol**, hydrogenation derivatives of (BRUNEL), A., i, 81.
- Carvacromenthols**, α - and β -, and the esters of the β -compound (BRUNEL), A., i, 81.
- Carvestrene**, synthesis of, and its dihydrobromide and dihydrochloride (PERKIN and TATTERSALL), P., 268.
- Carvoline**, constitution of, and its derivatives (WALLACH and LAUTSCH), A., i, 522.
- Carvomenthone**, cyano-, and its oximes (LAPWORTH), T., 1829; P., 285.
- Carvomenthonecarboxylic acid** (LAPWORTH), T., 1830; P., 285.
- Carvone**, action of hydrogen cyanide on (LAPWORTH), T., 949; P., 164.
 action of magnesium methyl iodide on (RUPE and LIECHTENHAN), A., i, 374.
hydrate (8-hydroxy-8:9-dihydrocarvone) and its phenylhydrazone (KNOEVENAGEL and SAMEL), A., i, 296.
 and its oxime and semicarbazone (KNOLL & Co.), A., i, 522.
semicarbazones (KNOEVENAGEL and SAMEL), A., i, 296; (RUPE, DORSCHKY, and HÖTZ), A., i, 595; (RUPE), A., i, 681.
- Carvopinone** and its semicarbazone (WALLACH and ENGELBRECHT), A., i, 684.
- iso***Carvoxime**, constitution of, and its bromides (WALLACH and LAUTSCH), A., i, 522.
- Casein**, decomposition of, by means of ozone (HARRIES), A., i, 54.
 action of hydrochloric acid on (SKRAUP and ZWERGER), A., i, 123.
 action of lactic acid on (LAXA), A., i, 123.
 action of the rennet ferment on (PETRY), A., i, 469.
 amount of alanine and glycine from (SKRAUP), A., i, 123; (ABDERHALDEN and HUNTER), A., i, 545.
 peptones from (SKRAUP and WITT), A., i, 916.
 as an acid and its distinction from casein altered by rennet (LAQUEUR), A., i, 56.
 salts (LONG), A., i, 391.
 estimation of (ARNY and PRATT), A., ii, 407.
 estimation of, in cheese (TRILLAT and SAUTON), A., ii, 639.
- Caseinogen** of cows' milk, hydrolysis of (ABDERHALDEN and HUNTER), A., i, 912.
 of various milks, comparison of the (ABDERHALDEN and SCHITTENHELM), A., ii, 467.
 separation of the phosphorus from, by enzymes and alkali (PLIMMER and BAYLISS), A., i, 325.
- Caseinokyrine** (SKRAUP and ZWERGER), A., i, 124.
- Cassava**, occurrence of phaseolunatin in (DUNSTAN, HENRY, and AULD), A., ii, 795.
- Cast iron.** See under Iron.
- Catalase** (LESSER), A., ii, 562.
 moderating action of, on oxidations produced by ferrous sulphate in presence of animal extracts (BATELLI and STERN), A., ii, 107.

- Catalase**, yeast, fate of, in cell-free alcoholic fermentation (BACH), A., i, 470.
 influence of peroxydase on the activity of (BACH), A., i, 470.
- Catalases** of blood (VAN ITALLIE), A., ii, 238, 461.
- Catalysis and Catalytic reactions.** See under Affinity, chemical.
- Catechol** (*pyrocatechol*; 1:2-dihydroxybenzene), action of iodine chloride on (JACKSON and BOSWELL), A., i, 496.
 derivatives (PERKIN and WEIZMANN), T., 1649; P., 269.
 monoalkyl ethers, compounds of, with proteids (FEHRLIN), A., i, 467.
 methyl ether. See Guaiacol.
 dimethyl ether. See Veratrole.
 methylene ether and its *p*-bromo-, *p*-chloro-, *p*-iodo-, and nitro-derivatives (MAMELI and BOI), A., i, 748.
 derivatives of (MEDINGER), A., i, 421.
- Catechol**, tetrabromo-, diacyl derivatives of, and heptabromodihydroxy-, tribenzoyl derivative, hemiether of (JACKSON and RUSSE), A., i, 289.
hexachlorodihydroxy, ether of (JACKSON and MACLAURIN), A., i, 97.
- Cathode.** See under Electrochemistry.
- Cedriret.** See Cærulignone.
- Celestite**, occurrence of, in the sedimentary rocks of France (COLLOT), A., ii, 39.
 occurrence of, at Maybee, Michigan (KRAUS and HUNT), A., ii, 290.
- Cell** division, physiology of (LILLIE), A., ii, 104.
 membrane and its constituents (KÖNIG, FÜRSTENBERG, and MURDFIELD), A., ii, 793.
 volume, osmotic effect of various salt solutions on (ROAF), A., ii, 784.
- Cells**, reaction of, to certain poisons (LANGLEY), A., ii, 111.
 galvanic. See under Electrochemistry.
 living, oxidising and reducing properties of (RACIBORSKI), A., ii, 45, 700.
 action of dilute solutions on (BOKORNY), A., ii, 104.
- Cellulose**, constitution of, and its triacetyl derivative (GREEN and PERKIN), T., 811; P., 136.
 action of acetic anhydride saturated with hydrogen chloride on (SKRAUP, GEINSPERGER, V. KNAFL-LENZ, MENTER, and SIRK), A., i, 68.
 digestion of, in the cæcum (SCHEUNERT), A., ii, 463.
 acetates (Ost), A., i, 560.
- Cellulose**, triacetyl derivative (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 6.
 estimation of, in crude fibre (KÖNIG), A., ii, 905.
- Cellulose**, nitrated, estimation of nitrogen in (BUSCH), A., ii, 392.
 nitro-, decomposition of (SILBERRAD and FARMER), T., 1182; P., 171.
 decomposition of, at temperatures below that of ignition (SAPOSHNIKOFF and JAGELLOWITSCH), A., i, 68.
 hydrolysis of (SILBERRAD and FARMER), T., 1759; P., 270.
 estimation of nitrogen in (BUSCH), A., ii, 708.
- Celluloses**, hydrolysis of some (ERNEST), A., i, 401.
- Cement**, Portland, hydration of (ROHLAND), A., ii, 285.
- Cereals**, direct manuring of, with different forms of calcium (LAZZARI), A., ii, 892.
- Cerebron** and phrenosin (THIERFELDER), A., ii, 183.
 Thierfelder's, identity of, with Thudichum's phrenosin (GIES), A., i, 871.
- Cerebrum**, chemical stimulation of the (MAXWELL), A., ii, 240, 871.
- Cerium compounds**, preparation of pure (ORLOFF), A., ii, 675.
- Cetaric acid**, reactions of (SIMON), A., i, 961.
- Cetylphosphoric acid** and its salts (BIEHRINGER), A., i, 2.
- Chabazite** from Gellivare, Sweden (BYGDÉN), A., ii, 38.
- Chailletia toxicaria**, chemical and physiological examination of the fruits of (POWER and TUTIN), A., ii, 794.
- Chalcedony**, spiral arrangement in (WALLERANT), A., ii, 837.
- Chalmersite**, composition of (HUSSAK), A., ii, 553.
- Chalybite** from Maryland (SCHALLER), A., ii, 369.
- Charcoal**, variations of state exhibited by, under the influence of temperature and the action of oscillations of temperature (MANVILLE), A., ii, 439, 537.
 absorptive power of, at low temperatures (DEWAR), A., ii, 830.
 absorption of gases by (VAUBEL), A., ii, 738.
- insoluble calcium and potassium compounds in (BERTHELOT), A., ii, 117.
 antitryptic effect of (HEDIN), A., ii, 780.
- See also Carbon.

Charlock, action of, on nitrification (GUTZEIT), A., ii, 476.
Cheese, importance of strictly anaërobic putrefactive bacilli for the ripening of (RODELLA), A., ii, 297.
Dutch (CRIBB), A., ii, 404.
Emmenthaler, constituents of (WINTERSTEIN and BISSEGER), A., ii, 248.
 composition of the whey and curd during the manufacture of (KOESTLER), A., ii, 485.
vegetable, from the proteid of the soy bean (KATAYAMA), A., ii, 889.
 See also Natto.
 estimation of casein in (TRILLAT and SAUTON), A., ii, 639.
Chelidamic acid, dimethyl ester (MEYER), A., i, 109.
Chelidonic acid, bromo- and -chloro-derivatives, esters (FEIST), A., i, 974.
Chemical action, activity, and affinity. See under Affinity, chemical.
 constitution and absorption spectra, relation between (STEWART and BALY), T., 489, 618; P., 33, 85; (BALY and STEWART), T., 502; P., 34; (BALY, EDWARDS, and STEWART), T., 514; P., 35; (BALY, MARSDEN, and STEWART), T., 966; P., 126; (BALY and TUCK), T., 982; P., 142.
 and colour, relation between, of acids, salts, and esters (HANTZSCH, BLACKLER, MORGAN, and PRAETORIUS), A., i, 856.
 relation between, in camphor derivatives (FORSTER), T., 225; P., 31.
 and colour and fluorescence, relation between (SILBERRAD), T., 1787; P., 251.
 and fluorescence, relation between, of organic substances (FRANCESCONI and BARGELLINI), A., ii, 714.
 and heat of combustion of azo-colouring matters (LEMOULT), A., ii, 832.
 and disinfecting properties, relation between (BECHHOLD and EHRlich), A., ii, 383.
 and odour, relation between, in organic compounds (WOKER), A., ii, 739.
 and physiological action (MARSHALL), A., ii, 788.
 relation between, in the tropeines (JOWETT and PYMAN), P., 317.
 and vapour pressure (BINGHAM), A., ii, 523.

XC. ii.

Chemical constitution, effect of, on the rotatory power of optically active nitrogen compounds (THOMAS and JONES), T., 280; P., 10.
 dynamics, equilibrium, kinetics, and statics. See under Affinity, chemical.
laboratory, Breslau University, new electrical arrangement of the (ABEGG), A., ii, 266.
Chemotaxis of *Equisetum spermatozoids* (LIDFORSS), A., ii, 44.
Cherry laurel. See *Prunus Laurocerasus*.
Chestnut flour, composition of, and study of two sugars contained therein (PALADINO), A., ii, 624.
Chilies. See *Capsicum annuum*.
Chitosan compounds, crystalline, from sepi shells (v. FÜRTH and RUSSO), A., i, 720.
Chloral, action of amines on (RÜGHEIMER), A., i, 419.
 soluble polymeride of (GÄRTNER), A., i, 481.
 preparation of a solid modification of (GÄRTNER), A., i, 628.
 alcoholate and aniline hydrochloride, three-phase lines in (ROOZEBOOM and LEOPOLD), A., ii, 654.
 hydrate, decomposition of, by exposure to light and air (SCHOORL and VAN DEN BERG), A., i, 481.
 action of bases on (ENKLAAR), A., i, 929.
 action of, on the heart (ROHDE), A., ii, 110; (CARLSON), A., ii, 877.
 effect of, on heart muscle (SCHULTZ), A., ii, 686.
 estimation of (WALLIS), A., ii, 255.
 estimation of, in parts of dead bodies (BETTINK and VAN DEN DRIESSEN MAREEUW), A., ii, 816.
Chlorates, Chloric acid, Chlorides, and Chlorites. See under Chlorine.
Chlorination by means of sulphuryl chloride (WOHL), A., i, 9.
Chlorine, amount of, in rain water (JORISSEN), A., ii, 486.
 amount of, in the rain water collected at Rothamsted (MILLER), A., ii, 486.
 changes in the properties of (FABINYI and FÖRSTER), A., ii, 435.
 function of the catalyst in the Deacon process for the manufacture of (LEVI and VOGHERA), A., ii, 605.
 equilibrium in the Deacon process (LEWIS), A., ii, 843.
 interaction of, with hydrogen (BURGESS and CHAPMAN), T., 1399; P., 37.

Chlorine, action of radium rays on mixtures of, with hydrogen (JORISSEN and RINGER), A., ii, 515.
electrolytic (FERCHLAND), A., ii, 842.
liquid, some reactions of (THOMAS and DUPUIS), A., ii, 662.
density of (TREADWELL and CHRISTIE), A., ii, 15, 79.
action of fluorine on (LEBEAU), A., ii, 739.
compound of, with iodine (MEERUM TERKWOET), A., ii, 15.
compounds of, with sulphur (ATEN), A., ii, 157.
Hydrochloric acid (hydrogen chloride), preparation of, from its elements (HOPPE), A., ii, 605.
generating apparatus (KÜSTER and ABEGG), A., ii, 348.
purification of, from arsenic (THORNE and JEFFERS), A., ii, 394.
dissociation of, at high temperatures (LÖWENSTEIN), A., ii, 272.
reaction of, with chloric acid (LUTHER and MACDOUGALL), A., ii, 436.
action of, on potassium chlorate (KOLB), A., ii, 15; (DITZ), A., ii, 155.
action of, on potassium permanganate in presence of various inorganic salts (BROWN), A., ii, 31.
in cancer (PALMER), A., ii, 786; (COPEMAN and HAKE), A., ii, 875.
free, in the gastric juice (DRESER), A., ii, 777.
for use in the Marsh-Berzelius method, removal of arsenic from (LING and RENDLE), A., ii, 250.
Chlorides, influence of the intake of water on the excretion of (HEILNER), A., ii, 295.
Chlorine dioxide (or peroxide), reactions of (BRAY), A., ii, 223.
and its hydrate and estimation (BRAY), A., ii, 222.
and iodides (BRAY), A., ii, 278.
Chloric acid, preparation of, and its use in analysis (FERNARD), A., ii, 305.
reaction between hydrochloric acid and (LUTHER and MACDOUGALL), A., ii, 436.
Chlorate, presence of, in sodium nitrate (GRIMBERT), A., ii, 282.
Chlorates, estimation of (KOLB), A., ii, 15; (DITZ), A., ii, 155.
Perchloric acid and its hydrates (VAN WIJK), A., ii, 79.
Chlorous acid, reactions of (BRAY), A., ii, 223.
Chlorite, estimation of, in presence of iodate (BRAY), A., ii, 278.

Chlorine:—

Hypochlorous acid, new method of forming (LEBEAU), A., ii, 739.

Chlorine, electrolytic, analysis of (TREADWELL and CHRISTIE), A., ii, 122.

Volhard method for the estimation of, in potable waters (SHUTT and CHARLTON), A., ii, 894.

and bromine, separation of, in acid solution by hydrogen peroxide (JANNASCH), A., ii, 894.

See also Halogens.

Chloro-compounds, organic, depression of the temperature of reaction in syntheses with (WOHL), A., i, 559.

Chloroform, chemical and physical properties of solutions of (MOORE and ROAF), A., ii, 187.

biochemical studies on (FEIGL and MEIER), A., ii, 876.

decomposition of, under the influence of light and air (SCHOORL and VAN DEN BERG), A., i, 57.

bromoform, and iodoform, comparison of the decomposition of, under the influence of light (SCHOORL and VAN DEN BERG), A., i, 474.

rise of temperature on mixing ethyl ether with (ROSENTHALER), A., i, 330.

action of sodium hydroxide and, on phenols in acetone solution (BARGELINI), A., i, 666.

retarding or paralysing action of, on the reactions yielding organo-magnesium compounds (REYCHLER), A., ii, 836.

proportion of, in the organism during anaesthesia (TISSOT), A., ii, 244.

anaesthesia, acetonuria following (BALDWIN), A., ii, 108.

influence of, on the growth of young animals (SCHAPIRO), A., ii, 180.

elimination of, by urine (NICLOUX), A., ii, 622.

estimation of small quantities of (NICLOUX), A., ii, 202.

estimation of ethyl alcohol in (NICLOUX), A., ii, 584.

Chloroma and leucæmia (GULLAND and GOODALL), A., ii, 566.

Chloromanganocalite (LACROIX), A., ii, 455.

Chlorophyll absorption (TSVETT), A., i, 973.

Chlorous acid. See under Chlorine.

Chocolate, influence of, on uric acid excretion (FAUVEL), A., ii, 564.

Chocolates, method of estimating impurities in (BORDAS and TOUPLAIN), A., ii, 408.

- Chocolates**, estimation of sucrose, reducing sugars, and added starch in (ROBIN), A., ii, 499; (PELLET), A., ii, 586.
- Choke damp** free from carbon dioxide (BLOUNT), A., ii, 280.
- Choleprasin** (KÜSTER), A., i, 468.
- Cholestandione**, constitution and reactions of, and its bromo-derivatives (WINDAUS), A., i, 580.
- Cholestane** derivatives, specific rotation of (MAUTHNER), A., i, 663. *mono-* and β -*di*-chloro-, and **Cholestanol**, chloro-(MAUTHNER), A., i, 579.
- α -**Cholestanol** and its benzoyl derivative, β -**Cholestanol**, and α - and β -**Cholestanes** (DIELS and ABDERHALDEN), A., i, 272, 425.
- Cholestenone** derivatives, specific rotation of (MAUTHNER), A., i, 663.
- Cholestenone** and its nitro-derivative and reactions (WINDAUS), A., i, 174.
- Cholesterol** (DIELS and ABDERHALDEN), A., i, 272; (MAUTHNER), A., i, 579; (WINDAUS), A., i, 579, 580. amount of, in fats and mineral oils and their probable genetic relationships (RAKUSIN), A., i, 951. occurrence of, in milk (SIEGFELD), A., ii, 204. preparation of, from brain (ROSENHEIM), A., ii, 240; (TEBB), A., ii, 241. behaviour of, to light (SCHULZE and WINTERSTEIN), A., i, 843. hydrogenisation of (NEUBERG), A., i, 356; (DIELS and ABDERHALDEN), A., i, 425. reaction of, with δ -methylfurfuraldehyde (NEUBERG), A., ii, 497. derivatives (WINDAUS), A., i, 174, 579, 580; (DIELS and ABDERHALDEN), A., i, 272; (MAUTHNER), A., i, 579, 663. colour phenomena among (LEHMANN), A., i, 952. separation of animal from vegetable (WINDAUS), A., ii, 904.
- Cholesterols**, new colour reaction of the (OTTOLENGHI), A., ii, 311.
- Cholesteryl esters**, existence of some, in three liquid modifications, one isotropic and two fluid-crystalline (LEHMANN), A., ii, 836.
- fatty esters and their liquid phases (JAEGER), A., i, 742.
- propionate, liquid crystals of (WALLERANT), A., ii, 837.
- Cholic acid** (*cholalic acid*) and its ethyl ester, azide, hydrazide, and benzylidenehydrazide (BONDI and MÜLLER), A., i, 633.
- Cholic acid**, conversion of, into cholamine (CURTIUS), A., i, 400. estimation of, in human faeces (v. OEFEL), A., ii, 501.
- Cholic acid**, mercury salts, preparation of (RIEDEL), A., i, 800.
- Choline** periodide and the estimation of choline by potassium tri-iodide (STANĚK), A., ii, 60. fate of, in the organism (v. HOESSLIN), A., ii, 294. effects of, on animals (BUZZARD and ALLEN), A., ii, 41. detection of, by the polarisation microscope (DONATH), A., ii, 133. detection of, in physiological fluids (ROSENHEIM), A., ii, 133. and betaine, estimation of, in plant tissues (STANĚK), A., ii, 700. quantitative separation of (STANĚK), A., ii, 314.
- Cholocamphoric acid**, Latschinoff's (PANZER), A., i, 775.
- Chromammonium compounds**. See under Chromium.
- Chromium**, electrolytic formation of (DONY-HÉNAULT), A., ii, 363. prepared by the "aluminothermal method," behaviour of, towards hydrogen haloids (DÖRING), A., ii, 451. specific heat of, between -188° and the ordinary temperature (FORCH and NORDMEYER), A., ii, 521. boiling and distillation of (MOISSAN), A., ii, 232. variable sensitiveness in the colorimetry of (HORN), A., ii, 253; (HORN and BLAKE), A., ii, 703, 893. compounds of quinquevalent (WEINLAND and FRIDRICH), A., i, 37.
- Chromammonium salts** (WERNER), A., ii, 760. co-ordination-isomerism and polymerism among (PFEIFFER, BASCI, GASSMANN, HAIMANN, and TRIESCHMANN), A., ii, 614. with ethylenediamine and oxalates (PFEIFFER and TRIESCHMANN), A., i, 71; (PFEIFFER, BASCI, GASSMANN, HAIMANN, and TRIESCHMANN), A., ii, 615. thiocyano- (WERNER and v. HALBAN), A., i, 816.
- Chromiumtriammine tetroxide** (RIESENFELD, KUTSCH, and OHL), A., ii, 92.
- Chromium salts** (WERNER and HUBER), A., ii, 170. hydrolysis of, in presence of iodides and iodates (MOODY), A., ii, 706.

Chromium salts, limiting states of some dissolved (COLSON), A., ii, 74.
 hydroxy-compounds of, with pyridine (PFEIFFER, TAPUACH, and OSANN), A., i, 531; (PFEIFFER and TAPUACH), A., i, 532.
Chromium chloride, equilibrium and transformations of the isomeric hydrates of (OLIE), A., ii, 859.
 new, $C_6Cl_3 \cdot 6H_2O$ (BJERRUM), A., ii, 363.
 compound of, with antimony chloride, constitution of (PFEIFFER and TAPUACH), A., i, 628.
chlorides, hydrated (WERNER and GUBSER), A., ii, 452.
chlorosulphates (WEINLAND and KREBS), A., ii, 233; (BJERRUM), A., ii, 363.
 hydroxide, partial cleavage of bivalent bases on precipitation of (STRÖM-HOLM), A., ii, 343.
dioxide (MANCHOT and KRAUS), A., ii, 859.
sesquioxide, black modification of (WERNER), P., 257.
trioxide (*chromic anhydride*), constitution of (MANCHOT and KRAUS), A., ii, 364, 860.
tetroxide, compounds of, with ethylenediamine and hexamethylenetetramine (HOFMANN), A., i, 805.
aluminium silicide (MANCHOT and KIESER), A., ii, 84.
sulphate, lead peroxide as anode in the electrolytic oxidation of (MÜLLER and SOLLER), A., ii, 66.
sulphates (COLSON), A., ii, 233.
 violet (WEINLAND and KREBS), A., ii, 453.
ammonium sulphate, solubility and solution equilibrium of (KOPPEL), A., ii, 860.
Chromous salts, oxidation of (SAND and BURGER), A., i, 487.
Chromic acid, constitution of (MANCHOT and KRAUS), A., ii, 364.
 reaction of, with quinine in light (GOLDBERG), A., ii, 514.
 as an oxidising agent (SEUBERT and CARSTENS), A., ii, 617.
Chromic acids, attempts to prove the existence of, by means of electrical conductivity (COSTA), A., ii, 617.
Dichromates, hydrolysis of (SAND), A., ii, 528.
Chromium organic salts, stereoisomeric, configuration of (PFEIFFER and TRIESCHMANN), A., i, 71.
Chromium thiocyanates, compounds of, with pyridine (PFEIFFER and OSANN), A., i, 602.

Chromium:—

Chromicyanides, insoluble (VAN DYKE-CRUSER and MILLER), A., i, 816.

Chromium, estimation of, in iron or steel (KLEINE), A., ii, 495.

use of ammonium persulphate in the estimation of, in steel (WALTERS), A., ii, 198.

Chromo, definition of term (HANTZSCH), A., i, 856.

Chronograph, new and improved (MOND and WILDERMAN), A., ii, 154.

Chrysiline (2-amino-5-p-aminophenyl-acridine), acetylation and methylation of (DUNSTAN and HEWITT), T., 482; P., 73.

Chrysazin, dichloro-, preparation of (WEDEKIND & Co.), A., i, 868.
 hydroxy-, ethers of (GRAEBE and THODE), A., i, 863.

p-nitro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 868.

Chrysophenol and its acyl derivatives and their salts, and its methylation (DUNSTAN and HEWITT), T., 1472; P., 243.

Chrysotile from Cyprus (EVANS), A., ii, 457.

Chymosin. See Rennin.

Cinchona alkaloids. See under Alkaloids.
 barks and their cultivation (HOWARD), A., ii, 248.

assay of, volumetrically (PANCHAUD), A., ii, 909.

Cinchonamine, salts of (HOWARD and PERRY), A., i, 102.

Cinchonic acid (*quinoline-4-carboxylic acid*), 2-chloro- and 2-hydroxy-, and their derivatives (MULERT), A., i, 534.

2-hydroxy-, methyl ester (MEYER), A., i, 108.

Cinchonine, thio- (COMANDUCCI and PESCITELLI), A., i, 977.

Cinnamaldehyde, electrolytic reduction of (LAW), T., 1517; P., 237.
 action of zinc on a mixture of, with ethyl α -bromopropionate (BAIDAKOWSKY), A., i, 178.

Cinnamene. See Styrene.

Cinnamencrylic acid and its compound with bromine (BAIDAKOWSKY), A., i, 178.

Cinnamenyldihydrosorcin (VORLÄNDER and GROEBEL), A., i, 365.

Cinnamenylgutaric acid and its methyl ester, anhydride and acid anilide (VORLÄNDER and GROEBEL), A., i, 365.

Cinnametylparaconic acid and its dibromide (BOUGAULT), A., i, 670.

- Cinnamic acid** from storax (ERLENMEYER), A., i, 21.
 reaction of, with benzaldehyde in sunlight (BENRATH), A., i, 535.
 and its esters, addition of bromine to (SUDBOROUGH and THOMAS), P., 318.
 addition of free hydroxylamine to (POSNER), A., i, 955.
 transformation of, into styrene by moulds (OLIVIERO), A., ii, 623.
 dichloride. See β -Phenylpropionic acid, $\alpha\beta$ -dichloro-.
- Cinnamic acid**, esters, complex compounds from (KOHLER and HERITAGE), A., i, 96.
 methyl ester, reduction of (HENLE), A., i, 669.
- Cinnamic acid synthesis**, Claisen's (MICHAEL), A., i, 85.
- Cinnamic acids**, stereoisomeric (ERLENMEYER), A., i, 176, 274; (MARCKWALD and METH), A., i, 360, 585; (ERLENMEYER and BARKOW), A., i, 429.
 α -chloro-, and their derivatives (SUDBOROUGH and JAMES), T., 105.
- Cinnamon**, detection of sugar in (SPAETH), A., ii, 500.
- Cinnamoylsalicylic acid** and its methyl and ethyl esters and quinine salt (JOWETT and PYMAN), P., 317.
- Cinnamyl** bromide, chloride, and ethyl ether (KLAGES and KLENK), A., i, 638.
- Cinnamylamine** bases and their relation to ephedrine and ψ -ephedrine (SCHMIDT and EMDE), A., i, 945.
- Cinnamylideneacetic acid**. See Styryl-acrylic acid.
- Cinnamylideneacetophenone-acetic and -malonic acids**, and their ethyl esters (VORLÄNDER and STAUDINGER), A., i, 366.
- Cinnamylideneaniline** picrate (CIUSA), A., i, 962.
- Cinnamylidene-*p*-bromo- and -*p*-methoxy-acetophenones** and their oximes (BAUER and BREIT), A., i, 517.
- Cinnamylidene-C-dimethyltetrazoline** (RUHEMANN), T., 1272.
- Cinnamylidenefluorene** and its di- and tetra-bronides and picrate (THIELE and HENLE), A., i, 572.
- Cinnamylidenecyclopentene** (THIELE and BALHORN), A., i, 639.
- Cinnamylidenerhodanic acid** and the action of bromine on (BARGELLINI), A., i, 384.
- Cinnamylmethylamine** and its additive salts (SCHMIDT and EMDE), A., i, 945.
- Cinnamylpyridine** additive salts (SCHMIDT and EMDE), A., i, 945.
- Cinnamyltrimethylamine** and its additive salts (SCHMIDT and EMDE), A., i, 945.
- Citral**, ozonide of (HARRIES and LANGHELD), A., i, 226.
 estimation of, in lemon oils and extracts (CHACE), A., ii, 906.
- Citrazinic acid** and its methyl derivatives, new mode of formation of (ROGERSON and THORPE), T., 631; P., 87.
- Citric acid**, salts, detection of (TOCHER), A., ii, 813.
 iron salts, and ammonio- and ammonium salts of the ferric salt (SIBONI), A., i, 65.
- Citric acid**, ethyl ester, hydrolysis of (MIELI), A., ii, 602.
- Citronella oil** from Perak, Federated Malay States, A., i, 442.
- Citronellal**, ozonide of (HARRIES and LANGHELD), A., i, 226.
- Citronellidineacetone** hydrate (KNOLL & Co.), A., i, 522.
- Citrus Aurantium**, formation and distribution of terpenic compounds in (CHARABOT and LALOUE), A., ii, 385.
- Citrylidene malonic acid**, ethyl ester, hydrate of (KNOLL & Co.), A., i, 522.
- cycloCitrylidene series**, tertiary alcohols of the (VERLEY), A., i, 196.
- Clavine**, a new constituent of ergot (VAHLEN), A., i, 876.
- Clay**, demonstration of the amount of, in soils (EMMERLING and SIEDEN), A., ii, 494.
- Clinozoisite** from Tyrol (WESTERGARD), A., ii, 684.
- Coagulation**, nature of (PAPPADÀ), A., ii, 840.
- Coal**, sampling of, and classification of analytical data (BEMENT), A., ii, 579.
 from British Central Africa, A., ii, 684.
 use of cobaltic oxide in the combustion of (NEUMANN), A., ii, 399.
 estimation of volatile combustible matters in (SOMERMEIER), A., ii, 802.
- Coal ash**, estimation of, in electrically heated organic combustion furnaces (SEIBERT), A., ii, 802.
- Coal gas** and air, explosive mixtures of (HÄUSER), A., ii, 441.
 explosions of (HOPKINSON), A., ii, 440.
 estimation of naphthalene in (DICKENSON-GAIN), A., ii, 201.

- Coal gas**, estimation of sulphur in (SCHUMACHER and FEDER), A., ii, 124; (HARDING; JENKINS), A., ii, 391.
- Coal tar**, new constituents of (AHRENS), A., i, 473.
- Westphalian, hydrocarbons from (BÖRNSTEIN), A., i, 414.
- Cobalt** (COPAUX), A., ii, 91.
- atomic weight of (BAXTER and COFFIN), A., ii, 858.
- tervalent (BENEDICT), A., i, 333.
- distribution of, in nature (KRAUT), A., ii, 858.
- action of, on silicon tetrachloride (VIGOUROUX), A., ii, 287.
- Cobalt salts**, properties of; lecture experiment (WEGSCHEIDER), A., ii, 549.
- spectroscopic researches on solutions of (MOORE), A., ii, 510.
- hydrolysis of, in presence of iodides and iodates (MOODY), A., ii, 706.
- complex, action of hydrazine hydrate on (FRANZEN and V. MAYER), A., ii, 859.
- compounds of, with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 485, 631.
- compounds of, with thiocarbamide (ROSENHEIM and MEYER), A., i, 408.
- Cobaltammonium salts** (WERNER and BINDSCHEDLER), A., ii, 760.
- containing ethylenediamine (WERNER and GRÜN), A., i, 70.
- chloropentamminecobalt sulphate, acid, composition of (BILTZ and ALEFELD), A., ii, 859.
- Cobalt** chloride, conductivity and viscosity of solutions of, in water, methyl alcohol, ethyl alcohol, acetone, and binary mixtures of these solvents (JONES and McMMASTER), A., ii, 737.
- hydrated, crystalline form and deformation of (MÜGGE), A., ii, 620.
- compound of, with pyridine, and its salts (WERNER and FEENSTRA), A., i, 450.
- chromates (GRÖGER), A., ii, 451.
- Cobaltous** chloride, analysis of (BAXTER and COFFIN), A., ii, 858.
- cobaltite (HOFMANN and HIENDLMAIER), A., ii, 747.
- Cobaltic** selenate (COPAUX), A., ii, 91.
- Cobalt organic compounds**, isomeric, absorption spectra of solutions of (ROSENHEIM and MEYER), A., i, 406.
- Cobalt dioximines** (TSCHUGAEFF), A., i, 814.
- thiocyanate (GROSSMANN and HÜNSELER), A., i, 7.
- mercury thiocyanate (ORLOFF), A., i, 406.
- Hydrocobalticyanic acid**, compounds of, with bases (WAGENER and TOLLENS), A., i, 149.
- Cobaltioxalic acid**, alkali salts, crystallography of (COPAUX), A., i, 623.
- Cobalt**, detection of, by the use of potassium periodate (BENEDICT), A., ii, 128.
- and nickel, separation of, from iron and manganese (FUNK), A., ii, 806.
- separation of, from tin (PUSHIN and TRECHZINSKY), A., ii, 199.
- Cobaltite** from Northern Ontario (DE LURY), A., ii, 680.
- Coca**, Javanese, assay of the alkaloids of (DE JONG), A., ii, 315, 625.
- Coca leaves**, extraction of (DE JONG), A., i, 978.
- Cocaine**, action of bromine on (DE JONG), A., i, 301.
- formate (VIGIER), A., i, 379.
- hydrochloride, old decomposed (BRETEAU), A., i, 600.
- new tests for (REICHARD), A., ii, 589, 817.
- α-Cochlosperminic acid** (ROBINSON), T., 1497; P., 243.
- Cochlospermum Gossypium**, the gum of (ROBINSON), T., 1496; P., 242.
- Cockroaches**, action of alkaloids on (MICHALSKI), A., ii, 695.
- Cocoa**, carbohydrates of (MAURENBRECHER and TOLLENS), A., ii, 884.
- estimation of fat in (KIRSCHNER), A., ii, 502.
- Cocoas**, method of estimating impurities in (BORDAS and TOUPLAIN), A., ii, 408.
- rapid estimation of fat in (TSCHAPLOWITZ), A., ii, 404.
- Cocoa fat**, estimation of total fatty acids in (FAHRION), A., ii, 402.
- Cocoanut oil** (REIJST), A., ii, 403.
- detection of, in butter (WIJSMAN and REIJST), A., ii, 402; (JEAN), A., ii, 402; (THORP), A., ii, 588.
- Cod** as a food (PFLÜGER), A., ii, 240.
- Cod liver oil**, separation of the fatty acids of (BULL), A., i, 925.
- Codeine**, formation of, from thebaine (KNORR and HÖRLEIN), A., i, 449.
- formula of (FREUND), A., i, 303; (KNORR and HÖRLEIN), A., i, 877.
- conversion of, into its optical isomerides (LEES and TUTIN), P., 253.

- Codeine** metho- and etho-bromides (RIEDEL), A., i, 530.
 reactions of (REICHARD), A., ii, 909.
- Codeine**, halogen derivatives, and their degradation (PSCHORR, KUHTZ, ROTH, and VOGTHERR), A., i, 877.
 hydroxy-, and its degradation by exhaustive methylation (KNORR and SCHNEIDER), A., i, 449.
 trihydroxyphenanthrene from (KNORR and HÖRLEIN), A., i, 877.
- Codeinone**, formation of, from thebaine (KNORR and HÖRLEIN), A., i, 449.
 bromo-, and its hydrobromide and hydrochloride, and hydroxy-, oxime of (FREUND), A., i, 303.
- Codethyline** metho- and etho-bromides (RIEDEL), A., i, 530.
- Ceramiderol** and its acetyl derivative (DECKER and SASSU), A., i, 690.
- Ceramidonium salts** (DECKER, FERRARIO, and SCHENK), A., i, 690.
- Ceroxene** and its derivatives and isologues (DECKER, FERRARIO, LAUBER, SASSU, SCHENK, and WUERSCH), A., i, 687.
- Ceroxenol** and its acetyl derivative and **Ceroxonol** and its ethyl ether and **Ceroxonium salts** (DECKER and FERRARIO), A., i, 688.
- Cærthienol**, **Cærthionol**, and **Cærthionium salts** (DECKER and WUERSCH), A., i, 690.
- Cœrulein** hydrochloride and sulphate (HELLEN and LANGKOPF), A., i, 672.
- Cœrulignone**, constitution of (MOIR), P., 110.
- Coffee**, influence of, on uric acid excretion (FAUVEL), A., ii, 564.
 estimation of caffeine in raw (WOLFF), A., ii, 507.
- Colemanite**, artificial production of (VAN'T HOFF), A., ii, 863.
- Colloid**, diastatic properties of a (DUCLAUX), A., ii, 660.
- Colloidal** "bubbles" from soaps, significance of water in the formation of (KRAFFT), A., ii, 276.
 metallic oxides, attempts to prepare (LEY and WERNER), A., i, 561.
 metals. See under the separate Metals.
 metalloids. See Selenium and Sulphur.
 nuclei and ions in dust-free air saturated with alcohol vapour (BARUS), A., ii, 651.
 precipitates, washing (DUCLAUX), A., ii, 677.
 preparations containing gold, silver, or copper (KALLE & Co.), A., i, 912.
- Colloidal salts**, intracellular (OSBORNE), A., ii, 241.
 formation of hydrosols by the interaction of ions (LOTTERMOSER), A., ii, 429.
- Colloidal solutions** (HARDY), A., i, 121 ; (LOTTERMOSER), A., ii, 528.
 electrical preparation of (SVEDBERG), A., ii, 330.
 electrically-prepared, properties of (BURTON), A., ii, 275.
 action of electrolytes on (BURTON), A., ii, 841.
 inorganic, characterisation of (BILTZ and GEIBEL), A., ii, 824.
- Colloidal substance**, transition of a crystalline substance to a (KURILOFF), A., ii, 343.
- Colloids**, literature of the (SABANÉEFF), A., ii, 841.
 is the phase rule valid in the case of? (GALEOTTI), A., ii, 273.
 physical conditions of (PAULI), A., ii, 180.
 filtration of, through gelatin (CRAW), A., ii, 276.
 coagulating action of (DREAPER and WILSON), P., 70.
 influence of non electrolytes on the mutual precipitation of, of opposite electrical sign (LARGUIER DES BANCELS), A., ii, 660.
 magnetic, magnetic and optical investigations on certain (SCARPA), A., ii, 829.
 organic, action of, on the electrolytic deposition of copper (MÜLLER and BAHNTJE), A., ii, 330.
 absorption of gallic acid by (DREAPER and WILSON), A., i, 777.
- Colocasia antiquorum**, effect of various potassium manures on the growth of (NAMIKAWA), A., ii, 891.
 sodium nitrate as top-dressing for (Asō), A., ii, 890.
- Colophonic acids**, α - and β -, and their salts (KLASON and KÖHLER), A., i, 100.
- Colophony**, action of, during the fermentation process (EFFRONT), A., ii, 2.
 American (LEVY), A., i, 870.
- Colostrum**, composition of (WINTERSTEIN and STRICKLER), A., ii, 242.
- Colorimetry**, variable sensitiveness in (HORN), A., ii, 253 ; (HORN and BLAKE), A., ii, 703, 893.
- Colour**, distribution of auxochromes in relation to (KAUFFMANN and FRANCK), A., i, 841.
 relation between constitution and, of acids, salts, and esters (HANTZSCH, BLACKLER, MORGAN, and PRAETORIUS), A., i, 856.

Colour, relation between constitution and, in camphor derivatives (FORSTER), T., 225; P., 31.
and fluorescence, relation of, to constitution (SILBERRAD), T., 1787; P., 251.
relation between temperature and depth of, of certain inorganic substances (ROHLAND), A., ii, 409.
Coloured substances, rotatory power of (GROSSMANN), A., ii, 823.
Colouring matter, $C_{16}H_8O_2S_2$, from 2-hydroxythionaphthen (FRIEDLÄNDER), A., i, 378.
 $C_{17}H_{18}O_2N_6$, from amino-*m*-toluidino-isobutyronitrile and *p*-nitrophenyl-diazonium chloride (BUCHERER and GROLÉE), A., i, 350.
Colouring matters, anthracene, blue and green (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 293.
of the cyanine series (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 716.
constitution of (BOOK), A., i, 42; (KÖNIG), A., i, 207.
of the stilbene group (GREEN and CROSLAND), T., 1602; P., 256.
basic, from formyl-*m*-diamines (ANILIN-FARBEN- & EXTRAKT-FABRIKEN VORM. J. R. GEIGY), A., i, 308.
formation of, from furfuraldehyde (ZINCKE and MÜHLHAUSEN), A., i, 33; (KÖNIG; DIECKMANN, BECK, and SZELINSKI), A., i, 109.
containing two triphenylmethane groups joined by a glutaconic aldehyde group, influence of methyl groups on the shade of (REIZENSTEIN and ROTHSCHILD), A., i, 316.
blue and violet, preparation of, by oxidation (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 444.
sulphur (SCHWALBE), A., i, 841.
constitution of (GNEHM and KNECHT), A., i, 837.
yellow, in Surinam greenheart (BLOEMENDAL), A., i, 873.
of Phæophyceæ (TSVETT), A., i, 873.
in saffron (DECKER), A., i, 686.
fluorescence of (FORMANEK), A., ii, 319.
formation of solid surfaces in solutions of, and their photoelectric effects (ROHDE), A., ii, 342.
condition of the, in artificially coloured crystals (GAUBERT), A., ii, 343.
of the mother liquor, influence of the, on the form of crystals deposited in it (GAUBERT), A., ii, 152.
prohibited in food in Italy, use of carbon tetrachloride in detecting (PIUTTI and BENTIVOGLIO), A., ii, 590.

Colouring matters. See also Aniline dyes, Azo-dyes, Disazo-dyes, Ketone dyes, and Sulphineazo-dyes.
Colouring matters, natural vegetable. See also :—
Alizarin.
Berberine.
Bixin.
Brazilein.
Brazilin.
Curcumin.
Ellagic acid.
Haematexylin.
Indigotin.
Indigo-yellow.
Kaempferol.
Kamala.
Morin.
Rottlerin.
 ψ -Rottlerin.
Saponaretin.
Vitexin.
Columbamine salts (GÜNZEL), A., i, 976.
Columbin from the white of pigeons' eggs, properties of, and its hydrobromide and hydrochloride (PANORMOFF), A., i, 223.
Columbite from Colorado and South Dakota (HEADDEN), A., ii, 37.
Columbium (*niobium*) oxybromide and oxychloride, haloid salts of (WEINLAND and STORZ), A., ii, 764.
Complement, deviation of, by a serum and its anti-serum and its relation to the precipitin test (MUIR and MARTIN), A., ii, 688.
action of, as agglutinin (MUIR and BROWNING), A., ii, 98.
Complementoids (SACHS), A., ii, 462.
Complexes, formation of, and hydration and colour (LEWIS), A., ii, 657.
aromatic, mutual exchange of (MEYER and PFOTENHAUER), A., i, 23.
Condensation apparatus, improved (BARNARD and BISHOP), A., ii, 655.
Condenser, safety, for extractions with inflammable solvents (BESSON), A., ii, 842.
Soxhlet, simple modification of a, for recovering the solvent (PASSERINI), A., ii, 842.
Conductivity, electrical. See under Electrochemistry.
thermal. See under Thermochemistry.
Conductors, crystallised, researches on the thermic and electric conductivity power of (JAEGER), A., ii, 653.
Conifer oils (HANSON and BABCOCK), A., i, 869.
Conifers, resin acids from (VESTERBERG), A., i, 92.

Coniine, analytical reactions of (GABUTTI), A., ii, 711.
isoConiine and the synthesis of coniine (LADENBURG), A., i, 692.
Coniinium cyanide (PETERS), A., i, 817.
Conium maculatum, carotin crystals in (TUNMANN), A., ii, 482.
"Conjugated groups," influence of (MEYER), A., i, 107.
Convallamarin, sugars of (VOTOČEK and VONDRAČEK), A., i, 378.
Copaiba balsam. See Balsam.
Copal, Java fossil (DIETERICH), A., i, 30.
Copals, chemical properties of the (BOTTLER), A., i, 300.
action of phenols and naphthalene on (COFFIGNIER), A., i, 870.
See also Resins.
Copper, atomic weight of (MURMANN), A., ii, 613.
action of organic colloids on the electrolytic deposition of (MÜLLER and BAHTJE), A., ii, 330.
effect of certain elements on the structure and properties of (HORN), A., ii, 613.
colloidal, blue and red modifications of (PAAL and LEUZE), A., ii, 356.
electro-deposition of, on iron (BROWN and MATHERS), A., ii, 214.
distillation of (MOISSAN), A., ii, 28.
solidification of (DEJEAN), A., ii, 356.
influence of small quantities of elements in, on its reactions with nitric acid (STANSBIE), A., ii, 166.
action of, on sulphur, selenium, and tellurium (HEYN and BAUER), A., ii, 230.
action of sulphuric acid on (SLUITER), A., ii, 357; (VAN DEVENTER), A., ii, 854.
action of various substances on the replacement of, in copper sulphate solutions by metallic zinc (VANDELVELDE and WASTEELS), A., ii, 167.
poisoning by. See under Poisoning.
use of metallic, for the purification of drinking water (KRAEMER), A., ii, 302.
univalent, compounds of thiocarbamide and of xanthamide with salts of (ROSENHEIM and STADLER), A., i, 407.
Cuprammonium salts (HORN), A., ii, 231.
Copper alloy with aluminium and manganese, Heusler's magnetic (GRAY), A., ii, 266.
with arsenic (FRIEDRICH), A., ii, 29.
with cadmium (SAHMEN), A., ii, 543.
with calcium (STOCKEM), A., ii, 285.

Copper alloy, eutectic, with cuprous oxide, composition of (DEJEAN), A., ii, 356; (HEYN), A., ii, 672.
with gold (MOISSAN), A., ii, 92.
with iron and with iron-carbon alloys (PFEIFFER), A., ii, 358.
with phosphorus (HEYN and BAUER), A., ii, 855.
with silicon (LEBEAU), A., ii, 29, 168; (VIGOUROUX), A., ii, 168.
with thallium (DOERINCKEL), A., ii, 166.
with tin, constitution of (SHEPHERD and BLOUGH), A., ii, 861.
estimation of tin in (LEVY), A., ii, 55.
with zinc (GUILLET), A., ii, 357.
Copper salts, spectroscopic researches on solutions of (MOORE), A., ii, 510.
compounds of, with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 629, 631.
double, with hydrazine, crystallography of (RANFALDI), A., ii, 664.
compounds of, with pyridine and quinoline (PFEIFFER and PIMMER), A., i, 104.
Copper chloride, reduction of, by calcium (HACKSPILL), A., ii, 161.
haloids, formation of mixed crystals of (MÖNKEMEYER), A., ii, 604.
hydroxychloride. See Paratacamite.
nitride (GUNTZ and BASSETT), A., ii, 359.
oxide, colloidal (PAAL and LEUZE), A., ii, 356, 358.
sulphate, electrolytic preparation of (KROUPA, LUCKOW, and CAMPAGNE), A., ii, 449.
specific heat of solutions of (VAILLANT), A., ii, 7.
variable sensitiveness in the colorimetry of (HORN and BLAKE), A., ii, 703.
decomposition of an aqueous solution of, by aluminium alloys (PÉCHEUX), A., ii, 286.
decomposition of, by methyl alcohol (AUGER), A., i, 550.
basic (HABERMANN), A., ii, 757.
Cuprous silicide. See Cuprosilicon.
Cupric hydroxide, stable (HABERMANN), A., ii, 757.
Copper organic compounds, violet and ultra-violet absorption spectra of complex (BYK), A., ii, 317.
Copper, delicate colour reaction for (BRADLEY), A., ii, 805.
microchemical reaction for, in presence of lead and bismuth (MEERBURG and FILIPPO), A., ii, 52.

- Copper**, estimation of, electrolytically (FOERSTER), A., ii, 805.
 estimation of, gasometrically, with hydrazine salts (EBLER), A., ii, 53.
 estimation of, iodometrically (GERLINGER), A., ii, 308.
 estimation of, by titanium trichloride (RHEAD), T., 1491 ; P., 244.
 estimation of small quantities of, in drinking waters (PHELPS), A., ii, 396.
 estimation of oxygen in (ARCHBUTT), A., ii, 122.
 separation of, from antimony (PUSHIN and TRECHZINSKY), A., ii, 199.
 separation of, from bismuth (MOSER), A., ii, 199.
- Copper ammoniacal solutions**, nature of (DAWSON), T., 1666 ; P., 256.
- Copper matte**, nature of (RÖNTGEN), A., ii, 672.
- Copper steels** (BREUIL), A., ii, 546, 677, 759.
- Cordite**, hydrolysis of (SILBERRAD and FARMER), T., 1772 ; P., 270.
 new method of estimating moisture in (DUPRÉ), A., ii, 626.
 direct estimation of nitroglycerol in (SILBERRAD, PHILLIPS, and MERRIMAN), A., ii, 633.
- Corundum**, pseudomorph after, from Perth, Ontario (GRAHAM), A., ii, 682.
- Cotarnine**, behaviour of, towards Grignard's reagent (FREUND and REITZ), A., i, 600.
 ferrichloride (VOSWINKEL), A., i, 203.
- Coto-bark**, synthesis of substances occurring in (PERKIN and ROBINSON), P., 305.
- Coumaran**, 1- and 2-amino- (*coumaranamine*), and their derivatives (STOERMER and KÖNIG), A., i, 200.
- Coumaranilic acid** and its anilide, azoimide, and hydrazide (STOERMER and KÖNIG), A., i, 200.
- 2-Coumaranol** nitrite (STOERMER and KÖNIG), A., i, 201.
- Coumaranylphenylcarbamide** (STOERMER and KÖNIG), A., i, 200.
- Coumarin**, fermentative production of, during development of certain hyphomycetes (GOSIO), A., ii, 699.
 residual affinity of, as shown by the formation of oxonium salts (MORGAN and MICKLETHWAIT), T., 863 ; P., 131.
 distinction of, from vanillin (KASTLE), A., ii, 503.
- Coumarins**, new, and their derivatives (CHUIT and BOLSING), A., i, 185.
 from *m*-cresol (FRIES and KLOSTERMANN), A., i, 276.
- Coumarincarboxylic acid**, preparation of amides of (MERCK), A., i, 853.
- iso***Coumarincarboxyltropeine** (JOWETT and PYMAN), P., 317.
- Cows**, albumin from the blood-serum of (MAXIMOWITSCH), A., i, 224.
 milch, physiological effects of certain phosphorus compounds on (JORDAN, HART, and PATTEN), A., ii, 472.
- Crackene** from Westphalian coal tar (BÖRNSTEIN), A., i, 414.
- Cream**, experiments with Röhrig's modification of the Gottlieb-Röse apparatus for the estimation of fat in (GORDAN), A., ii, 501.
- Creatine**, excretion of, in man (KLERCKER), A., ii, 295.
- Creatinine**, formation of, in the organism (JAFFÉ), A., ii, 783.
 excretion of (KOCH), A., ii, 108 ; (CLOSSON), A., ii, 471.
 excretion of, in man (PEKELHARING, VAN HOOGENHUYZE, and VERPLOEGH), A., ii, 40 ; (VAN HOOGENHUYZE and VERPLOEGH), A., ii, 186 ; (KLERCKER), A., ii, 295.
- o***-Cresol**, *o*-amino-, oxidation product of (KEHRMANN and URECH), A., i, 210.
6-bromo-*5*-nitro- (AUWERS), A., i, 838.
p-nitro-, and its methyl ether and its additive salts and acetyl derivative (ULLMANN and FITZENKAM), A., i, 45.
- m***-Cresol**, *o*-amino-, oxidation product of (KEHRMANN and BÜHLER), A., i, 211.
- p***-Cresol**, *tetrabromo*-, ψ -bromide of, reactions of (ZINCKE and BÖTTCHER), A., i, 166.
 ψ -chloride of, and its acetyl derivatives (ZINCKE and BÖTTCHER), A., i, 167.
tetrachloro-, ψ -bromide of, action of tertiary amines on (ZINCKE and HUNKEL), A., i, 738.
 ψ -chloride of, and its acetyl derivative (ZINCKE and BÖTTCHER), A., i, 739.
- Cresols**, amino- and nitro-, ethers of (SPIEGEL, MUNBLIT, and KAUFMANN), A., i, 837.
- p***-Cresol-5-sulphonic acid**, 3-amino-, derivatives of (KALLE & Co.), A., i, 658.
- β -Cresotic acid**. See *m*-Tolanic acid, 2-hydroxy-.
- m***-Cresotic acid**. See *p*-Tolanic acid, 3-hydroxy-.

- p-Cresotic acid.** See *m-Toluic acid, 4-hydroxy-*.
- Cretins**, metabolism in (SCHOLZ), A., ii, 102.
- Critical pressures** of solutions (CENTNERSZWER and PAKALNEET), A., ii, 341.
- Critical temperature** and value of $\frac{ML}{\Theta}$ of some carbon compounds (BROWN), T., 311; P., 39.
- of gases and vapour, connection between the, and their absorption coefficients, and the viscosity of the solvent medium (TATE), A., ii, 838.
- of solutions (CENTNERSZWER and ZOPPI), A., ii, 272.
- in liquid carbon dioxide (BÜCHNER), A., ii, 71.
- Crocoite**, preparation of crystalline (CESÁRO), A., ii, 28.
- from Tasmania (ANDERSON), A., ii, 768.
- Crookes' tubes**, phenomena observed in (BACON), A., ii, 722.
- Crops**, influence of manures on the protein contents of (WHITSON, WELLS, and VIVIAN), A., ii, 47.
- effect of straw manure on (v. SEELHORST), A., ii, 702.
- Japanese, application of sodium nitrate as top-dressing for some (Asō), A., ii, 890.
- Crotonaldehyde**, action of cyanoacetic acid on (HAERDTL), A., i, 62.
- action of organo-magnesium compounds on (REIF), A., i, 394.
- Crotonic and isoCrotonic acids** (OECHSNER DE CONINCK), A., i, 4.
- Crotonic acid**, addition of bromine to (SUDBOROUGH and THOMAS), P., 319.
- amino-, ethyl ester, action of thiocarbimides on (BEHREND and HENNICKE), A., i, 312.
- a-Crotonic acid**, ethyl ester, action of benzylamine on (SANI), A., i, 653.
- isoCrotonic acid**, ozonide of (HARRIES and LANGHELD), A., i, 226.
- Crucibles**, new triangle for (KETTE), A., ii, 14.
- Crustacea**, decapod, the digestive gland in (ROAF), A., ii, 779.
- Cryohydrate mixtures**, laws of the reciprocal action of solid substances in (FLAWITZKY), A., ii, 152.
- Cryoscopy**, studies in comparative (ROBERTSON), T., 567; P., 82.
- Crystalline habit** (COTTRELL), A., ii, 220.
- Crystalline substances**, constitution of (WALLERANT), A., ii, 14.
- transition of, to a colloid substance (KURILLOFF), A., ii, 343.
- spiral arrangement in (WALLERANT), A., ii, 837.
- Crystallisation**, spontaneous, of supersaturated solutions (HARTLEY), P., 60.
- of supersaturated solutions, influence of light on (TRAUTZ and ANSCHÜTZ), A., ii, 411.
- Crystallising solutions**, refractive indices of (MIERS and ISAAC), T., 413; P., 9.
- Crystallography** of some organic compounds (JAEGER), A., i, 642.
- See also Isodimorphism and Isomorphism.
- Crystalloids**, filtration of, through gelatin (CRAW), A., ii, 276.
- Crystals**, experiments on the regular growths of, of one substance on those of another (BARKER), T., 1120; P., 111, 112.
- conditions of growth of, of different forms in a fluid medium (PAWLOFF), A., ii, 552.
- attractive force of, for like molecules in saturated solutions (SONSTADT), T., 339.
- movements of, on mercury while dissolving due to electro-capillarity (THIEL), A., ii, 325.
- more exact determination of the densities of (EARL OF BERKELEY), P., 321.
- artificially coloured, condition of the colouring matter in (GAUBERT), A., ii, 152, 343.
- liquid (VORLÄNDER), A., i, 317; (TAMMANN), A., ii, 220.
- structure of (LEHMANN), A., ii, 430, 431.
- extension of the field of existence of, by addition of other substances (LEHMANN), A., ii, 837.
- substances existing in three modifications, one isotropic and two fluid-crystalline (LEHMANN), A., ii, 836.
- mixed, formation of, from fused mixtures of copper, lead, silver, and thallium haloids (MÖNKEMEYER), A., ii, 604.
- use of thermal analysis to determine the composition of (TAMMANN), A., ii, 10.
- abnormal depression of the transition temperature in (BOEK), A., ii, 830.
- in ternary systems (SCHREINEMAKERS), A., ii, 342.

- Ctenophore swimming plate**, contractility and coagulation of the colloids of the (LILLIE), A., ii, 466.
- Cubanite** as a furnace product (HEADDEN), A., ii, 35.
- ψ -Cumene**, occurrence of, in Roumanian petroleum (PONI), A., i, 9. action of bromine on (CIUSA), A., i, 942.
- Cumengeite** (FRIEDEL), A., ii, 455.
- β -Cumenyl- α -ethylhydrylic acid** and its salts (KALISCHERF), A., i, 178.
- Cuminaldehyde** and its azine (GATTERMANN), A., i, 592. electrolytic reduction of (LAW), T., 1514, 1526; P., 237.
- ψ -Cuminaldehyde** and its amino-hydroxy- and nitro-derivatives (GATTERMANN), A., i, 592.
- Cuminoin**, electrolytic oxidation of (LAW), T., 1444; P., 197. electrolytic reduction of (LAW), T., 1518, 1526; P., 237.
- ψ -Cumoylacrlyic acid** (KÓZNIEWSKI and MARCHLEWSKI), A., i, 759.
- ψ -Cumyl bromide**, bromohydroxy-derivatives, and their compounds with bases (AUWERS and KIPKE), A., i, 263.
- ψ -Cumylaniline**, dibromo-*p*-hydroxy-, derivatives of (AUWERS and DOMBROWSKI), A., i, 380.
- δ -Cumyl- $\alpha\alpha$ -dimethyl-fulgenic acid** and -fulgide and their isomerides (STOBBE and LEUNER), A., i, 22.
- α -Cumylidene- $\delta\delta$ -dimethylparaconic acid** (STOBBE and LEUNER), A., i, 23.
- Cuprammonium salts**. See under Copper.
- Cupric and Cuprous compounds**. See under Copper.
- Cuprosilicon** (*cuprous silicide*) (LEBEAU), A., ii, 29, 168; (VIGOUROUX), A., ii, 168.
- Curcumin**, formula of (JACKSON and CLARKE), A., i, 596.
- Currants**, physiological action of copper-lime mixture on (EWERT), A., ii, 387.
- Cusparine** and its salts and bromo-, chloro-, and iodo-derivatives (BECKURTS and FRERICHS), A., i, 34.
- Cutin**, estimation of, in crude fibre (KÖNIG), A., ii, 905.
- Cyanalkines** (*termolecular nitriles*), constitution and mode of formation of (v. MEYER), A., i, 411.
- Cyanamides**, preparation of (MCKEE), A., i, 732.
- acyl derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 634.
- Cyanates**, estimation of, volumetrically (CUMMING and MASSON), A., ii, 505. estimation of, in presence of cyanides (WILD), A., ii, 405. thio-. See Thiocyanates.
- Cyanbenzyline**, formation of (ATKINSON and THORPE), T., 1931.
- Cyanethine** (*6-amino-5-methyl-2:4-dieethylpyrimidine*), phthalyl and tribromo-derivatives (v. MEYER), A., i, 411.
- Cyanides**. See under Cyanogen.
- Cyanine dyes**, constitution of (BOOK), A., i, 42; (KÖNIG), A., i, 207.
- Cyanine series**, colouring matters of the (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 716.
- Cyanogen**, presence and detection of, in Burma, Java, and haricot beans (TATLOCK and THOMSON), A., ii, 711. synthesis of, from its elements (WALLIS), A., i, 730. action of the electric discharge on (GAUDECHON), A., i, 731.
- Hydrocyanic acid** (*hydrogen cyanide*) in plants. See Glucosides, cyanogenetic. preparation of, from ferrocyanides (FELD), A., i, 486.
- synthesis of, from its elements (WALLIS), A., i, 730.
- as an anti-catalyst (LOEVENHART), A., ii, 153; (BREDIG, FRAENKEL, and LICHTY), A., ii, 426.
- action of, on ketones (ULTÉE), A., i, 5, 479; (BUCHERER and GROLÉE), A., i, 405.
- reactions involving the addition of, to carbon compounds (LAPWORTH), T., 945, 1869; P., 164, 285.
- poisoning by. See under Poisoning.
- Cyanides**, formation of, at low temperatures (PETERS), A., i, 817.
- Cyanogen iron compounds**, blue, and the cause of their colour (HOFMANN and RESENSCHECK), A., i, 75. reduction of (KOHN), A., i, 562.
- Cyanohydrins** of aldehydes and ketones, reaction of, with the sodium derivative of ethyl cyanoacetate (HIGSON and THORPE), T., 1456; P., 242.
- Cyanuric acid** as a pseudo-acid and its salts (HANTZSCH), A., i, 146.
- Cyclene**, chloro- (SLAWIŃSKI), A., i, 29.
- Cyclic compounds**, velocity of formation of (PETRENKO-KRITSCHENKO and KONSCHIN), A., i, 57.
- Cystinuria** (GARROD and HURTLEY), A., ii, 471.

Cytisine, bromonitro-, bromonitroso-, nitro-, and nitronitroso-derivatives (FREUND and HORKHEIMER), A., i, 302.

Cytosine (*4-amino-2-oxypyrimidine*), 5-hydroxy-, synthesis of (JOHNSON and MCCOLLUM), A., i, 704.
5-iodo-, and its picrate and acetyl derivative (JOHNSON and JOHNS), A., i, 455.
5-nitro-, and its acetyl derivatives, and its reduction to 5:6-diamino-2-oxypyrimidine (JOHNSON, JOHNS, and HEYL), A., i, 770.

D.

Datolite from Dundas, Tasmania (ANDERSON), A., ii, 768.

from Westfield, Massachusetts (KRAUS and COOK), A., ii, 684.

Datura, alkaloids which induce mydriasis from (SCHMIDT and KIRCHER), A., i, 379.

Datura arborea, estimation of the alkaloids in the leaves and stalks of (BECKURTS), A., ii, 909.

Deacon process. See under Chlorine.

Deaminocasein (SKRAUP and HOERNES), A., i, 913.

Deaminoglutin (SKRAUP), A., i, 912.

Decahydro- α -naphthol and its acetate, benzoate, and phenylcarbamate (LEROUX), A., i, 16.

Decamethylene oxide (ALBERTI and SMIECIUSZEWSKI), A., i, 619.

Decamethyleneimine and its probable constitution (BLAISE and HOUILLON), A., i, 693, 764.

and its benzoyl derivative (KRAFFT), A., i, 553.

Decane, dihydroxy-. See Decane- α -diol and $\beta\zeta$ -Dimethyloctane- $\gamma\theta$ -diol.

Decanedicarboxylic acid. See $\beta\beta\epsilon'\epsilon'$ -Tetramethylsuberic acid.

Decane- α -diol, preparation of the chlorhydrin, oxide, and unsaturated alcohol from (ALBERTI and SMIECIUSZEWSKI), A., i, 619.

$\gamma\epsilon\theta$ -**Decanetetrone** and its dioxime (DIELS, SIELISCH, and MÜLLER), A., i, 438.

Decenoic acid. See β -Ethyl- α -propyl-acrylic acid.

Decoic acid, ι -amino-, and its anhydride, additive salts, and benzoyl derivative (KRAFFT), A., i, 553; (BLAISE and HOUILLON), A., i, 764.

Decomposition-tannin (THOMS), A., i, 760.

Decylene glycol. See Decane- α -diol.

Decylthiophan (MABERY and QUAYLE), A., i, 395.

De-(N)-dimethyltetrahydrodeoxycytidine and its salts (FREUND and HORKHEIMER), A., i, 303.

isoDehydroacetic acid, ethyl ester (*ethyl carbaceetoacetate*) and its reactions (FEIST and BEYER), A., i, 334.

Dehydroboronecarboxylic acid from the electrolytic reduction of camphor-carboxylic acid (BREDT and BURKHEISER), A., i, 680.

Dehydrodithiomalonanilide and its sulphide (REISSERT and MORÉ), A., i, 327.

Denitrifying bacteria. See under Bacteria.

Density of crystals, more exact determination of the (EARL OF BERKELEY), P., 321.

Deoxyalizarin dimethyl and diethyl ethers (GRAEBE and THODE), A., i, 863.

Deoxybenzoin, trihydroxy-. See Phenyl-gallacetophenone.

β -Deoxybenzoin- α -carboxylic acid and its lactone, action of hydrazine on (WÖBLING), A., i, 49.

Deoxyhydroxyanthrarufin. See Anthrone, trihydroxy-.

Depolarisers. See under Electrochemistry.

Desiccator, high vacua in the Scheibler type of (GORE), A., ii, 605.

Dew, amount of combined nitrogen in (LEATHER), A., ii, 302.

Indian, composition of (LEATHER), A., ii, 487.

Dextrins from starch, conversion of, into maltose (MAQUENNE and ROUX), A., i, 327, 547; (FERNBACH), A., i, 327; (FERNBACH and WOLFF), A., i, 484.

Dextrose (*d-glucose*), removal of, from molasses by fermentation (H. and L. PELLET and PAIRAUT), A., ii, 383.

osmotic pressure and depression of the freezing point of solutions of (MORSE, FRAZER, and HOPKINS), A., ii, 600.

influence of sodium arsenite on the fermentation of, by yeast-juice (HARDEN and YOUNG), P., 283.

action of *Bacillus lactic aerogenes* on (HARDEN and WALPOLE), A., ii, 380.

action of *as*-phenylethylhydrazine on (OFNER), A., i, 385.

action of, on selenious acid (OECHSNER DE CONINCK and CHAUVENET), A., ii, 81.

in hydrocele fluid (PATEIN), A., ii, 294.

action of, on the animal body (HEILNER), A., ii, 689.

- Dextrose**, influence of subcutaneous injections of, on nitrogenous metabolism (UNDERHILL and CLOSSON), A., ii, 778.
- Fehling's test for, in urine (MACLEAN), A., ii, 255.
- osazone test for, as influenced by dilution and by the presence of other sugars (SHERMAN and WILLIAMS), A., ii, 498.
- two new methods for the estimation of (GLASSMANN), A., ii, 203; (ARNOLD), A., ii, 400.
- and levulose, estimation of (KICKTON), A., ii, 255.
- estimation of, in urine (BLAISE), A., ii, 710; (WIESLER), A., ii, 810.
- Diabetes (glycosuria)** and lipæmia (TURNEY and DUDGEON), A., ii, 109.
- and intra-ocular lipæmia (WHITE), A., ii, 566.
- blood-glands as pathogenic factors in the production of (LORAND), A., ii, 296.
- caused by excess of carbon dioxide in respired air (EDIE), A., ii, 786.
- treatment of, by extract of duodenum (MOORE, EDIE, and ABRAM), A., ii, 186, 787.
- new metabolic product in the urine in severe cases of (STRZYZOWSKI), A., ii, 472.
- adrenaline (UNDERHILL and CLOSSON), A., ii, 787.
- pancreatic (MINKOWSKI; PFLÜGER), A., ii, 186.
- action of ethyl glucosaminecarboxylate in (FORSCHBACH), A., ii, 788.
- salt (UNDERHILL and CLOSSON), A., ii, 186, 243.
- Diabetes mellitus**, secretin in relation to (BAINBRIDGE and BEDDARD), A., ii, 786.
- Diabetic arthritis**, utilisation of carbohydrate in (LAUFER), A., ii, 566.
- Diacetamide**, chloro-derivatives (FINGER), A., i, 811.
- Diacetophenonemalonylidihydrazone** (BÜLOW and WEIDLICH), A., i, 982.
- Diacetoxymethoxyphenanthrene** (KNORR and SCHNEIDER), A., i, 449; (KNORR and HÖRLEIN), A., i, 877; (PSCHORR, KUHTZ, and ROTH), A., i, 878.
- v-Diacetoxyterephthalic acid** and its ethyl ester (THIELE and GÜNTHER), A., i, 744.
- Diacetoxy-** See also under the parent Substance.
- Diacetylacetone**, action of ethyl iodide and of propyl iodide on the disodium derivative of (BAIN), T., 1224; P., 196.
- p-Diacetylbenzene** and its dioxime (BEREND and HERMS), A., i, 854.
- Diacetyl-l-tartaric acid**, menthyl ester, rotation and molecular solution volume of (PATTERSON and KAYE), T., 1884; P., 274.
- Diacetyl**. See also under the parent Substance.
- Diacridines** (BAEZNER, GUEORGUIEFF, and GARDIOL), A., i, 901.
- Diacetylhydrazide** chlorides, preparation of (STOLLÉ), A., i, 453; (STOLLÉ and THOMAE), A., i, 461; (STOLLÉ and WEINDEL), A., i, 707; (STOLLÉ and BAMBACH), A., i, 709.
- Diacyl- ψ -thiocarbamides**, molecular rearrangement of unsymmetrical to isomeric symmetrical (JOHNSON and JAMESON), A., i, 351.
- Dialanine** and its hydrochloride and platinichloride (GABRIEL), A., i, 635.
- Dialdehydes**, aliphatic, preparation of (WOHL and SCHWEITZER), A., i, 232.
- Dialkyl** disulphides, electrolytic preparation of (PRICE and TWISS), P., 260.
- Dialkylacetamides**, bromo-, preparation of (KALLE & Co.), A., i, 485, 634.
- p-Dialkylaminobenzaldehydes**, reactions of (SACHS and MICHAELIS), A., i, 575.
- p-Dialkylaminobenzhydrylamines**, preparation of (MERCK), A., i, 661.
- Dialkylaminobenzoylbenzoic acid**, esters, action of magnesium phenyl bromide on (PÉRARD), A., i, 755.
- Dialkylanilines**, 2:4-dinitro-, oxidation of, with chromic anhydride (MULDER), A., i, 492.
- 5:5-Dialkylbarbituric acids**, preparation of (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 461, 538, 703, 987; (EINHORN), A., i, 538; (CHEMISCHE FABRIK AUF AKTIEN VORM. E. SCHERING), A., i, 893; (FAEWERWERKE VORM. MEISTER, LUCIUS, & BRÜNING; TRAUBE), A., i, 894; (MERCK), A., i, 987.
- 2-arylimino- and 2-arylhydrazino-, preparation of (EINHORN), A., i, 538.
- Dialkylmalonamides** (MEYER), A., i, 137; (BÖTTCHER), A., i, 340, 405.
- Dialkylmalonic acids** (MEYER), A., i, 138; (BÖTTCHER), A., i, 340.
- Dialkylmalonyl-p-phenetidines**, preparation of (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 497.
- Diallyl diazonium** (HARRIES and TÜRK), A., i, 227.
- Dialuric acid** and its acetyl and benzoyl derivatives (BEHREND and FRIEDRICH), A., i, 311.

- isoDialuric acid* (BEHREND and FRIEDRICH), A., i, 312.
- Diamide, dicyano-**. See Dicyanodiamide.
- o-Diamines*, condensation of, with phthalic acid (MANUELLI and MASELLI), A., i, 308.
- N*-substituted, condensation products of, with alloxan and its derivatives (KÜHLING and KASELITZ), A., i, 463.
- m-Diamines*, formyl derivatives, basic dyes from (ANILINFARBEN- & EXTRAKT-FABRIKEN VORM. J. R. GEIGY), A., i, 308.
- diazotisation of substituted (GESELLSCHAFT FÜR CHEMISCHE INDUSTRIE IN BASEL)*, A., i, 718.
- p-Diamines*, aromatic, azimino-compounds from (MORGAN and MICKLETHWAIT), A., i, 911.
- Diamines, o-, m-, and p-**, action of di-basic acids on (MEYER, JAEGER, V. LUTZAU, and MAIER), A., i, 765.
- Diamino-acids** from egg-albumin (HUGOUNENQ and GALIMARD), A., i, 776.
- synthesis of (NEUBERG and FEDERER), A., i, 805.
- polypeptides of (FISCHER and SUZUKI), A., i, 73.
- Diaminoalkyl esters**, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 936.
- Diamond**, problem of the preparation of (KOENIG), A., ii, 610.
- Diisocamylaminoethyl benzoate** and its oxalate (CHEMISCHE FABRIK AUF AKTIEN VORM. E. SCHERING), A., i, 952.
- Diisomylaniline** (WALLACH), A., i, 161.
- Diisoamyl-arsine** and its derivatives, and -arsinic acid (DEHN and WILCOX), A., i, 152.
- Dianilaconitic acid** (RUHEMANN), T., 1850; P., 284.
- Dianilino-o-benzoquinone**, dichloro-, and its aniline and alcohol compounds (JACKSON and MACLAURIN), A., i, 97.
- Dianilino-p-benzoquinoneanil**, chloro- (JACKSON and MACLAURIN), A., i, 98.
- Dianilinodimethyllethylecarbinol** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 936.
- Di-o-anisidine-6:6'-disulphonic acid** and its sodium salt, preparation of (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 837.
- Dianisoylphenylhydroxylamine** (CIAMICIAN and SILBER), A., i, 11.
- Dianisylideneacetone**, compound of, with a benzene solution of phosphorus pentachloride (STRAUS and ECKER), A., i, 860.
- Dianisylindene**, α -hydroxy- (THIELE and BÜHNER), A., i, 570.
- Diantipyryl-mono- and -di-ethylene-diamines** and their additive salts (LUFT), A., i, 118.
- Diaphragms**, types of, most used in electrolysis and formulae proposed for calculating the yield (LOMBARDI), A., ii, 596.
- of porous oxide of iron, use of, in the electrolysis of alkaline chlorides (MALLET and GUYE), A., ii, 649.
- Diisoapiole** (SZÉKI), A., i, 660.
- Diarrhoea**, epidemic (SANDILANDS), A., ii, 109.
- Diaryl sulphides**, preparation of (MAUTHNER), A., i, 421, 948.
- m-Diarylsulphoniamides**, nitration of (AKTIEN-GESELLSCHAFT FÜR ANILINFABRIKATION), A., i, 701.
- Diasarone** (SZÉKI), A., i, 660.
- Diastase**, preparation and properties of (FRÄNKEL and HAMBURG), A., i, 917.
- malt (KLEEMANN), A., ii, 46.
- Diastases**, influence of the reaction of the medium on the activity of (MAQUENNE and ROUX; FERNBACH), A., i, 327.
- Diastatic saccharification** (MAQUENNE and ROUX), A., i, 327, 547; (FERNBACH), A., i, 327; (FERNBACH and WOLFF), A., i, 484.
- Diatom-chromatophores**, pigments of (KOHL), A., ii, 571.
- Diatoms**, brown pigment of (MOLISCH), A., ii, 118.
- ¶Diazacetamide** and its reactions (CURTIUS, DARAPSKY, and MÜLLER), A., i, 939.
- Diazoacetic acid**, ethyl ester, gradual decomposition of (SILBERRAD and ROY), T., 179; T., 15.
- Diazoacetylaminocetic acid**, ethyl ester (CURTIUS and DARAPSKY), A., i, 403.
- isoDiazoacetylglycinamide** and its acyl derivatives and salts (CURTIUS and THOMPSON), A., i, 404, 940.
- Diazoacetylaminocetic acid** (isodiazoacetylaminocetic acid) and its ethyl ester, action of ammonia on (CURTIUS and THOMPSON), A., i, 404, 940.
- Diazoacetylglycylglycine**, ethyl ester (CURTIUS and THOMPSON), A., i, 403.
- action of ammonia on (CURTIUS and THOMPSON), A., i, 404.
- Diazoalizarin hydroxides** and sulphates, α - and β - (SCHULTZ and ERBER), A., i, 968.

- Diazoamines**, influence of substitution on the formation of (MORGAN and CLAYTON), T., 1054; P., 174.
- Diazoaminobenzene**, *p*-amino-, and its *N*-acetyl derivative (WILLSTÄTTER and BENZ), A., i, 997.
- 4-Diazoanthraquinone**, 1-hydroxy-, and its sulphate (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 323.
- Diazobenzene perchlorate** (VORLÄNDER), A., i, 906; (HOFMANN and ARNOLDI), A., i, 907.
- p**-picrate, action of ammonia and amines on (SILBERRAD and ROTTER), T., 167; P., 18.
- sulphate**, action of sulphur dioxide on (TRÖGER, HILLE, and VASTERLING), A., i, 120; (TRÖGER and FRANKE), A., i, 993; (TRÖGER, BERLIN, and FRANKE), A., i, 994.
- Diazobenzene**, *p*-amino-, *N*-acetyl derivative, perbromide of, preparation (SILBERRAD and SMART), T., 170; P., 14.
- s*-tribromo-, *syn*-cyanide of, action of light on (CIUSA), A., i, 775.
- p*-nitro-, chloride of, interaction of, with 5-bromo-*as*(4)-dimethyl-2:4-diamino-toluene (MORGAN and CLAYTON), T., 1058.
- Diazobenzeneimide**, *p*-nitro- (BRESLER, FRIEDEMANN, and MAI), A., i, 322.
- Diazobenzeneimides**, condensation of, with pyrazolones (v. WALTHER and ROTHACKER), A., i, 911.
- Diazobenzene-3-sulphonic anhydride**, 2:5:6-trichloro-, and its compound with β -naphthol (NOELTING and BATTEGAY), A., i, 221.
- Diazobenzene**. See also Benzenediazo.
- Diazo-compounds**, new method of formation of (SCHMIDT), A., i, 52.
- stable, study of (MORGAN and WOOTTON), P., 23.
- action of, on α -hydroxynaphthoic acids (GRANDMOUGIN), A., i, 997.
- Diazo-derivatives** of diamines (VIGNON), A., i, 223.
- Diazohydrates**, action of, on oximino-compounds (BRESLER, FRIEDEMANN, and MAI), A., i, 321.
- Diazohydroxynaphthalenes**, 1:2-and 2:1-anhydrides of (ANILINFARBEN- & EXTRAKT-FABRIKEN VORM. J. R. GEIGY), A., i, 908.
- Diazomalonic acid**, ethyl ester (PILOTY and NERESHEIMER), A., i, 146.
- Diazomethane**, action of, on aldehydo-acids and aldehydes (MEYER), A., i, 87.
- action of, on pyridones and hydroxy-pyridinecarboxylic acids (MEYER), A., i, 108.
- 1-Diazonaphthalene-4-sulphonic acid**, 2-hydroxy-, nitration of (ANILINFARBEN- & EXTRAKT-FABRIKEN VORM. J. R. GEIGY), A., i, 545.
- Diazonium perchlorates** (VORLÄNDER), A., i, 906; (HOFMANN and ARNOLDI), A., i, 907.
- hydroxides, transformation of (BRITISH ASSOCIATION REPORTS), A., i, 943.
- salts, action of light on solutions of (BRITISH ASSOCIATION REPORTS), A., i, 943.
- action of water on (CAIN and NORMAN), T., 19.
- substitution of negative groups by the hydroxyl group in ortho-substituted (NOELTING and BATTEGAY), A., i, 221.
- 1-Diazo-2-oxy-naphthalenesulphonic acids** and their salts and andydrides (ANILINFARBEN- & EXTRAKT-FABRIKEN VORM. J. R. GEIGY), A., i, 907.
- Diazophenolsulphonic acid** and dichloro-, and its compounds with β -naphthol (NOELTING and BATTEGAY), A., i, 222.
- Diazo-reactions**, influence of light on (ORTON, COATES, and BURDETT), P., 308.
- m-Diazotoluene** chloride and sulphate, action of sulphur dioxide on (TRÖGER, HILLE, and VASTERLING), A., i, 120; (TRÖGER and SCHAUB; TRÖGER, WARNECKE, and SCHAUB), A., i, 993.
- Diazotriazolecarboxylic acid** and its ethyl ester (MANCHOT and NOLL), A., i, 213.
- Diazoxides**, formation of, from nitroso-benzene (v. EULER), A., i, 369.
- Barbituryl-alkylamines** and -carbamide (MÖHLAU and LITTER), A., i, 612.
- Dibenzaldehydemethylmalonyldihydrazone** (BÜLOW and WEIDLICH), A., i, 982.
- Benzeneazoxybenzene** (BORSCHE and KÜHL), A., i, 321.
- Diphenazeo- α -naphthol** and its reduction (GRANDMOUGIN), A., i, 997.
- Diphenyl-3:3'-disulphonic acid** (*di-phenyl-3:3'-disulphonic acid*) and its methyl ester, amide, anilide, and chloride, and 4:4'-diamino (SCHULTZ and KOHLHAUS), A., i, 818.
- S-Dibenzenesulphonyldiaminomesitylene** (MORGAN and MICKLETHWAIT), T., 1299.
- Dibenzylazoxime** and *di-m*-nitro-(MINUNNI and CIUSA), A., i, 187; (PONZIO and BUSTI), A., i, 855.
- di-m*-chloro- and *di-m*-nitro-(FRANZEN and ZIMMERMANN), A., i, 388.

- Dibenzyloxyazoxime** (WIELAND and BAUER), A., i, 412.
- s-Dibenzothiazylethane** (REISSERT and MORET), A., i, 827.
- Dibenzoylacetyl methane**, constitution of (MICHAEL and MURPHY), A., i, 180.
- 3:5-Dibenzoyl-1:4-dihydrocollidine.** See 3:5-Dibenzoyl-2:4:6-trimethyl-1:4-dihydropyridine.
- $\alpha\beta$ -Dibenzoyl- β -diphenylbutane** (BENRATH), A., i, 535.
- 1':1"-Dibenzoyldiphenyl-1:4-phenylenediamine**, 3':5':3":5"-tetranitro- (ULLMANN and BRODO), A., i, 190.
- Dibenzoyldisopropylamine** and its additive salts (ISSOGLIO), A., i, 862.
- Dibenzoylhydrazide** dichloride and diethyl ether (STOLLE and THOMAE), A., i, 461.
- di-p*-bromo-, dichloride and diethyl ether of, and their reactions and *di-p*-chloro-, dichloride and dimethyl ether of (STOLLE and WEINDEL), A., i, 707.
- di-p*-nitro-, dichloride of (STOLLE and BAMBACH), A., i, 710.
- Dibenzoylmethane**, diazotisation of (WIELAND and BLOCH), A., i, 466.
- as-Dibenzoyl- ψ -methyl- and -ethyl-thiocarbamides**, conversion of, into the *s*-compounds (JOHNSON and JAMIESON), A., i, 351.
- 1:1'-Dibenzoyl-3:5':5"-tetranitrodi-phenyl** (ULLMANN and BRODO), A., i, 189.
- 3:5-Dibenzoyl-2:4:6-trimethyl-1:4-dihydropyridine** (ISSOGLIO), A., i, 862.
- Dibenzoyl-** See also under the parent Substance.
- Dibenzsulphohydroxamic acid**, *o*-di-cyano- (WALKER and SMITH), T., 352; P., 62.
- Dibenzyl** disulphide, electrolytic preparation of (PRICE and TWISS), P., 260.
- Dibenzylaminophenols**, *o*- and *p*-, and their hydrochlorides (BAKUNIN), A., i, 496.
- Dibenzyldisulphoxide** (FROMM and DE SEIXAS PALMA), A., i, 819.
- Dibenzylfluorene** (THIELE and HENLE), A., i, 572.
- Dibenzylideneacetone** and its halogen derivatives (STRAUS and ECKER), A., i, 859.
- α -Dibenzylideneacetonehydroxylamine-oxime**, oxidation and reduction of, and its bromo-derivative (MINUNNI and CIUSA), A., i, 95.
- Dibenzylidenehydrazine**, *di-p*-hydroxy-, and its acyl derivatives (VORLÄNDER), A., i, 318.
- Dibenzylidene-*o*-phenylenediamine**, *p*-chloro-, and *p*-chloro-*di-p*-nitro- (FISCHER and LIMMER), A., i, 895.
- 1:3-Dibenzylindene** and its dibromide and nitrosochloride, and hydroxy- (THIELE and BÜHNER), A., i, 569.
- Dibenzyl ketone**, condensation of, with *p*-chloro-, *p*-hydroxy-, and *o*- and *p*-nitro-benzaldehydes (SCHIMETSCHÉK), A., i, 368.
- Dibenzylnaphthalene** (v. BOGUSKI), A., i, 825.
- Dibenzylsilic平** (DILTHEY and EDUARD-OFF), A., i, 128.
- Disobutene tetrabromide.** See $\alpha\beta\epsilon$ -Dimethylhexane, $\alpha\beta\epsilon\zeta$ -tetrabromo-.
- Disobutylamine**, *N*-formyl derivative (VAN ROMBURGH), A., i, 3.
- 1:4-Diethyl-butylbenzene** and its nitro-derivatives (BÖDTKER), A., i, 943.
- Disobutyl ketone** and its semicarbazone (PONZIO), A., i, 66.
- Disobutyric acid**, α -dithio-(BIILMANN), A., i, 626.
- Disobutyroin** (BOUVEAULT and LOCQUIN), A., i, 783.
- Disobutyryl** and its oximes and reactions with magnesium organic compounds (BOUVEAULT and LOCQUIN), A., i, 803.
- Di- β -camphidone** anhydride and its bromide (TAFEL and BUBLITZ), A., i, 44.
- Dicarbamide**, benzylidene derivative, constitution of (STOLLE), A., i, 315.
- $\alpha\beta$ -Dicarbethoxy- $\gamma\gamma$ -dimethylbutyrolactone** (HALLER and BLANC), A., i, 625.
- Dicarboxyaconitic acid**, methyl ester, transformations of (ANSCHÜTZ and DESCHAUER), A., i, 727.
- Dicarboxyglutaconic acid**, ethyl ester, sodium derivative, formation of (COUTELLE), A., i, 139.
- Dicarboxylic acids**, electrolytic decomposition of (VANZETTI), A., i, 624. salts of aromatic bases with (ANSELMINO), A., i, 493.
- $\alpha\alpha$ -Dicarboxy- α -methylaconitic acid**, methyl ester (ANSCHÜTZ and DESCHAUER), A., i, 728.
- Dicarboxymethyltricarballylic acid**, methyl ester (ANSCHÜTZ and DESCHAUER), A., i, 728.
- Dicarboxytricarballylic acid**, methyl ester (ANSCHÜTZ and DESCHAUER), A., i, 728.
- Dichromates.** See under Chromium.
- Dicoumaranilic hydrazide** (STOERMER and KÖNIG), A., i, 200.
- Dicoumaranylcarbamide** (STOERMER and KÖNIG), A., i, 200.

- Dicresol**, bromo-derivatives (MOIR), P., 259.
- Dicyanodiamide** (*cyanoguanidine*), spontaneous formation of, in manures containing calcium cyanamide (PERTOTI), A., ii, 304.
- additive compounds of, with inorganic salts (GROSSMANN and SCHÜCK), A., i, 938.
- Di-p-dimethylaminodibenzyl** and its platinichloride (MANCHOT, ZAHN, and KRÄNZLEIN), A., i, 753.
- Didymium glass**, coloration of, by radium chloride (BASKERVILLE), A., ii, 824.
- Dielectric constants**. See under Electrochemistry.
- Diet**, influence of, on growth and nutrition (WATSON and HUNTER), A., ii, 101, 239.
- 1:2-Diethoxyanthrone**. See Deoxyalizarin diethyl ether.
- 1:3-Diethoxybenzene**. See Resorcinol diethyl ether.
- 2:2'-Diethoxybenzophenone**, 5:5-di-bromo- (DIELS and ROSEN MUND), A., i, 674.
- as- $\beta\beta$ -Diethoxyisobutyric acid** and its ethyl ester (TSCHITSCHIBABIN), A., i, 397.
- γ -Diethoxybutyric acid**, ethyl ester, and potassium salt (WOHL and SCHWEITZER), A., i, 233.
- 7:8-Diethoxycaffeine** (FISCHER and ACH), A., i, 220.
- α -Diethoxydinaphthastilbene** and its haloids and hydrogen perhaloids (HANTZSCH and DENSTORFF), A., i, 745.
- $\alpha\eta$ -Diethoxyheptane** (DIONNEAU), A., i, 134.
- Diethoxymethyldihydouracils**, α - and β -, hydroxy- (BEHREND, OSTEN, and BEER), A., i, 310.
- p-Diethoxyphenyl diselenide** (TABOURY), A., i, 835.
- Diethyl** disulphide, electrolytic preparation of (PRICE and TWISS), P., 260.
- Diethylacetyl diethylamide** (EINHORN and v. DIESBACH), A., i, 398.
- p-Diethylaminoisoalkylbenzenes** (SACHS and MICHAELIS), A., i, 575.
- β -Diethylamino- β -amyl-, and β -hexyl-acrylic acids**, ethyl esters (MOUREU and LAZENNEC), A., i, 957.
- p-Diethylamino-benzophenoneoxime** and -benzhydrylamine and its hydrochloride (MERCK), A., i, 661.
- 2'-Diethylaminobenzoylbenzoic acid**, 3:6-di-bromo-, and its methyl ester and acetyl derivative (SÉVERIN), A., i, 508.
- p-Diethylaminobenzylidene-acetone**, -barbituric acid, -benzyl cyanide, -p-nitrobenzyl cyanide, -cynoacetamide, -malononitrile, and -rhodanic acid (SACHS and MICHAELIS), A., i, 575.
- p-Diethylaminobenzylidenethiosemicarbazide** (SACHS and MICHAELIS), A., i, 575.
- Di-p-ethylaminodiphenylamine** and its triacetyl derivative (GNEHM and SCHRÖTER), A., i, 211.
- 4'-Diethylaminodiphenylmethane**, 2:3:5:6-tetrachloro-4-hydroxy-, and its hydrochloride and acetyl derivative (ZINCKE and HUNKEL), A., i, 738.
- Di-p-ethylaminoditolylamine** and its tri-benzoyl derivative (GNEHM and SCHRÖTER), A., i, 212.
- Diethylaminoethanol**, *o*- and *m*-amino-benzoates and *o*-nitrobenzoate of, and their hydrochlorides (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 845.
- m*-dimethylaminobenzoate and *N*-dimethylylantranilate of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 846.
- p*-dimethylaminobenzoate (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 847.
- Diethylaminoethyl benzoate** and its hydrochloride (CHEMISCHE FABRIK AUF AKTIEN VORM. E. SCHERING), A., i, 952.
- N-Diethylaminomethyl-alkyl- and -aryl-amides** (EINHORN, BISCHOPFF, SZELINSKI, and SPRÖNGERTS), A., i, 246.
- Diethylaminomethyl diethylcarbinol** and its additive salts (SÜSSKIND), A., i, 133; (PAAL and WEIDENKAFF), A., i, 236.
- β -Diethylamino- β -phenylacrylonitrile** (MOUREU and LAZENNEC), A., i, 956.
- Diethylammonium cyanide** (PETERS), A., i, 817.
- Diethylaniline**, bromo-derivatives and their perbromides and salts (FRIES), A., i, 649.
- p*-nitroso-, action of ethylene dibromide on (TORREY), A., i, 80.
- 5-Diethylbarbituric acid**, preparation of (MERCK), A., i, 461; (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 538, 704; (EINHORN), A., i, 538; (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 704; (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING; TRAUBE), A., i, 894
- acidic constants of (WOOD), T., 1835.
- p-Diethylbenzene**, *di-* α -amino-, and the *t*-isomeride (BEREND and HERMS), A., i, 854.

- Diethyldiacetylacetone** (BAIN), T., 1233; P., 196.
- s-Diethylglycolic acid** and its salts and imide (LOSSEN and SMELKUS), A., i, 60.
- Diethylene disulphide**, diamino- (NEUBERG and ASCHER), A., i, 938.
- Diethylenediamine.** See Piperazine.
- Diethylfulvene** (THIELE and BALHORN), A., i, 639.
- Diethyl ketone** (*propione*), β -chloro- (BLAISE and MAIRE), A., i, 142.
- Diethylmalon-amic and -diethylamic acids** (EINHORN and v. DIESBACH), A., i, 398.
- s-Diethylmalonamide**, *N*-formyl derivative (EINHORN and SPRÖNGERTS), A., i, 249.
- Diethylmalonic acid**, anhydrides of (EINHORN and v. DIESBACH), A., i, 398.
- methyl ester (MEYER), A., i, 138.
- Diethylmalonyl-p-phenetidine** (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 497.
- s-Diethyloxamide**, *N*-bromo- and *N*-dichloro- (CHATTAWAY and LEWIS), T., 161; P., 18.
- Diethylisopropenylcarbinol** (COURTOT), A., i, 926.
- 3:5-Diethyl-2-propylpyridine**, synthesis of (TSCHITSCHIBABIN), A., i, 452.
- Diethylpyrimidime**, diiminocyanoinoimino- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 538.
- 5:5-Diethylpyrimidine**, 2:4:6-triimino- (MERCK), A., i, 537.
- Diisoeugenol methyl ether** (SZÉKI), A., i, 660.
- Diferrononacarbonyl.** See under Iron.
- Diffusion**, the mean path traversed by gaseous molecules and its relation to the theory of (SMOLUCHOWSKI), A., ii, 652.
- rate of, and viscosity, relation between (WALDEN), A., ii, 217.
- influence of other substances on the rate of, in jellies (BECHHOLD and ZIEGLER), A., ii, 656.
- in jellies (MEYER), A., ii, 105.
- of gases (KASSNER), A., ii, 273.
- of solutions and molecular weights (YÉGOUNOW), A., ii, 338.
- Osmosis**, experimental demonstration of (THIEL), A., ii, 337.
- nature of the process of, and of osmotic pressure with observations concerning dialysis (KAHLENBERG), A., ii, 337.
- gaseous, through a colloidal membrane (AMAR), A., ii, 337.
- Diffusion**:—
- Osmotic pressure**, the van't Hoff-Raoult formula (BANCROFT), A., ii, 523.
- relation between vapour pressure and, in a concentrated solution (SPENS), A., ii, 273.
- method of determining the, of very small quantities of liquid (HAMBURGER), A., ii, 9, 687.
- of solutions, determination of the, by the measurement of their vapour pressures (BERKELEY and HARTLEY), A., ii, 599.
- of alcoholic solutions (BARLOW), A., ii, 273.
- of solutions of non-electrolytes in connection with the deviations from the laws of ideal gases (VAN LAAR), A., ii, 526.
- of dilute aqueous solutions (BARLOW), A., ii, 149.
- of solutions of sugar in mixtures of ethyl alcohol and water (BARLOW), T., 162.
- and heart activity (CARLSON), A., ii, 241.
- α -Difuryl-fulgenic acid** (*difurfurylidenesuccinic acid*) and **-fulgide** (STOBEE and ECKERT), A., i, 102.
- Digestion**, chemistry of (LONDON), A., ii, 464.
- rôle of enzymes in food on (SCHEUNERT and GRIMMER), A., ii, 462.
- in animals (NEMSER), A., ii, 778.
- in elasmobranch fishes (SULLIVAN), A., ii, 100.
- of carbohydrates, rôle of cellular elements in the, by intestinal juice (BIERRY and FROUIN), A., ii, 559.
- of proteids. See under Proteids.
- peptic (MEY), A., ii, 462.
- salivary, influence of neutral salts on (PATTEN and STILES), A., ii, 777.
- See also Stomach.
- Digestion experiments**, artificial (GUDEMAN), A., i, 53.
- Digitalis**, strophanthus, and squill, pharmacological action of, on the heart (HAYNES), A., ii, 243.
- Digitoxin**, behaviour of, in the organism (CLOETTA and FISCHER), A., ii, 474.
- Digitoxonic acid**, calcium salt and lactone of (KILIANI), A., i, 66.
- Digitoxose**, constitution of (KILIANI), A., i, 66.
- β -Diglycerylphosphoric acid** and its calcium salt (TUTIN and HANN), T., 1754; P., 273.
- Diglycolic acid**, thio-, platinous hydrogen salt (RAMBERG), A., i, 792.

- Diglycylglycine**, methyl ester (FISCHER), A., i, 146.
- Dihalooids**, Grignard's reaction with (BLAISE), A., i, 153.
- Dihexahydrobenzylidenehexanone** (WALLACH and ISAAC), A., i, 564.
- Dihexonoin** (BOUVEAULT and LOCQUIN), A., i, 783.
- Dicyclohexylamine** and its salts and N-nitroso-derivative (WALLACH), A., i, 160.
- Dicyclohexylethane** (FREUNDLER), A., i, 734.
- Dihydrazines** of dibasic acids, condensation products of (BÜLOW and WEIDLICH), A., i, 981.
- pp'-Dihydrzinodiphenylmethane** (FINGER and BAUMANN), A., i, 892.
- Dihydroasarone** (SZÉKI), A., i, 660.
- Dihydroisobenzofuran** derivatives (GUYOT and CATEL), A., i, 761.
- Dihydrocamphoenic acid** and its amide (SEMMLER), A., i, 682.
- Dihydro- β -campholyl alcohol** and its chloride, pyruvate, and semicarbazone (BLANC), A., i, 174.
- Dihydrocamphoric acid**, synthesis of (BLANC), A., i, 64.
- Dihydrocamphorophrone** (*dihydropulegone*) (SEMMLER and MCKENZIE), A., i, 374.
- Dihydrocarvone**, cyano-, and its reactions and its oxime, phenylhydrazone, semicarbazone, and isomeric dibromides (LAPWORTH), T., 945; P., 164.
- cyanohydrin of, and its hydrolysis, and halogen haloiods of (LAPWORTH), T., 1822; P., 285.
- 8:9-Dihydrocarvone**, 8-hydroxy-. See Carvone hydrate.
- Dihydrocarvone hydrate**. (*8-hydroxymenthan-2-one*) and its semicarbazone (KNOEVENAGEL and SAMEL), A., i, 297.
- Dihydrocarvonecarboxylic acids**, isomeric, and their oximes, phenylhydrazone, and semicarbazone, and their oxidation (LAPWORTH), T., 959; P., 164.
- Dihydrocholesterol** (NEUBERG), A., i, 356.
- Dihydrocinnamyl alcohol**, α -hydroxy-, and its benzoyl derivative (SEMMLER), A., i, 785.
- Dihydrocinnamylidenefluorenes**, $\Delta\alpha$ - and $\Delta\beta$ -, and their dibromides (THIELE and HENLE), A., i, 573.
- Dihydrodicyclopentadiene**, amino- and chloroamino-, and their additive salts (WIELAND), A., i, 418.
- Dihydrofencholenaldehyde** and its semi-carbazine (SEMMLER), A., i, 681.
- Dihydrofencholenic acid** and its esters and amide and isomeride (SEMMLER), A., i, 681.
- Dihydrofencholyl alcohol** and its acyl derivatives and isomeride (SEMMLER), A., i, 681.
- Dihydrolaurelene** and **Dihydroisolaurelene**, supposed identity of, with 1:1-dimethylhexahydrobenzene (CROSSLEY and RENOUF), T., 26.
- densities, magnetic rotations, and refractive powers of (PERKIN), T., 33.
- Dihydroisolaurelene**, constitution of (CROSSLEY and RENOUF), T., 30.
- Dihydromeroquinine**, hydroxy- (KOENIGS, BERNHART, and IBELE), A., i, 764.
- 2:3-Dihydro-3-methylindene-2-carboxylic acid**. See 3-Methyl-2:3-dihydroindene-2-carboxylic acid.
- Δ^2 -Dihydro-1-naphthoic acid**, the relative catalytic effect of bases on the compounds of (PICKARD and YATES), T., 1484; P., 244.
- Dihydro-ocimene**, formula of, and its dibromide (ENKLAAR), A., i, 377.
- Dihydrophthalic acid**, optically active (NEVILLE), T., 1744; P., 274.
- 1:3-Dihydrophthalic anhydride**, affinity constants of (ABATI), A., i, 959.
- Dihydrophthalic anhydrides**, $\Delta^{1:3}$ - and $\Delta^{2:5}$, transformation of, by heat (ABATI and CONTALDI), A., i, 959.
- Dihydropinenecarbithionic acid** and its salts (Houben and Doescher), A., i, 970.
- Dihydropinenecarboxylic acid** and its salts and anhydride (Houben), A., i, 21.
- Dihydropinenesulphinic acid** and its sodium salt (Houben and Doescher), A., i, 970.
- Dihropinylamine** (*pinocamphylamine*), preparation and properties of, and its salts, acyl derivatives, and carbamide (TILDEN and SHEPHEARD), T., 1560; P., 255.
- Dihropulegenone**. See Dihydrocamphorophrone.
- 4:5-Dihydropyrazole-3:4:5-tricarboxylic acid**, ethyl ester (SILBERRAD and Roy), T., 179; P., 15.
- Dihropyruvic ureide** and **dimethylureide** (GABRIEL), A., i, 635.
- 1:4-Dihydroquinoxaline**, a second (EKELEY), A., i, 459.
- Di-hydrotarnine** and its additive salts (FREUND and REITZ), A., i, 601.
- C-Dihydrotetrazine**. See Bisdiazo-methane.

- 1:4-Dihydrotetrazine** (*tetrazoline*) (RUHEMANN), T., 1268; P., 238.
- N-Dihydrotetrazine**, Hantzsch and Silberrad's, constitution of (BÜLOW), A., i, 905.
- s-Dihydrotetrazines**, condensation of, with aldehydes (STOLLE), A., i, 315; (RUHEMANN), A., i, 465.
- Dihydroumbellulones**, α - and β - (TUTIN), T., 1117.
- m-Dihydro-xylene** diazonide (HARRIES and NERESHEIMER), A., i, 833.
- Di-indylmethane** (FINGER and BAUMANN), A., i, 893.
- 2:4-Diketo-1- and -3-alkyl-1:2:3:4-tetrahydroquinazolines** (v. PAWLEWSKI), A., i, 542.
- 2:6-Diketo-4-benzenesulphonylpiperazine** (JOHNSON and MCCOLLUM), A., i, 157.
- 3:4-Diketo-3:4-dihydro- β -quinacridine** (v. NIEMENTOWSKI), A., i, 209.
- 4:4'-Diketo-2:2'-dimethyltetrahydro-diquinazolyl, 5:5'-dinitro-** (BOGERT and SELI), A., i, 713.
- 6:6'-dinitro-** (BOGERT and COOK), A., i, 988.
- Diketomethylpiperazine** (FISCHER and ABDERHALDEN), A., i, 326.
- α -Diketones** and their derivatives, preparation of (BOUVEAULT and LOQUIN), A., i, 803.
- relation between the absorption spectra and chemical constitution of (BALY and STEWART), T., 502; P., 34.
- phenylosazones and phenylhydrazone of, thermochemistry of (LANDRIEU), A., ii, 270.
- 2:5-Diketopiperazines**, stereochemistry of (FISCHER and RASKE), A., i, 457.
- 3:4-Diketotetrahydrofuran-2:5-di-carboxylic acid**, ethyl ester (JOHNSON and JOHNS), A., i, 874.
- 1:3-Diketotetramethylcyclobutane** and its derivatives (WEDEKIND, WEISSWANGE and ERDMANN), A., i, 437.
- 3:3-Diketo-5:5':5'-tetramethyl- $\Delta^1,1'$ -di-cyclohexene** (CROSSLEY and RENOUF), P., 303.
- Dimalonic acid, iminodi-hydroxy-, ethyl ester** (CURTISS), A., i, 339.
- 2:3-Dimethoxyanthracene** and its pierate and polymeride (LAGODZINSKI), A., i, 82.
- 1:2-Dimethoxyanthrone**. See Deoxy-alizarin dimethyl ether.
- 1:2-Dimethoxybenzene**. See Veratrole.
- 1:3-Dimethoxybenzene**. See Resorcinol dimethyl ether.
- 1:4-Dimethoxybenzene**. See Quinol dimethyl ether.
- Di-p-methoxybenzylazoxime** (PONZIO and BUSTI), A., i, 855.
- 2:5-Dimethoxybenzoic acid** and its ethyl ester, amide, and nitrile (KAUFFMANN and GROMBACH), A., i, 287.
- 2:2'-Dimethoxybenzophenone**, 5:5'-dibromo- (DIELS and ROSENmund), A., i, 674.
- 2:5-Dimethoxybenzophenone** and its oximes, phenylhydrazine, dichloride, and phonylimine (KAUFFMANN and GROMBACH), A., i, 284.
- o-3':4'-Dimethoxybenzoylbenzoic acid** and its salts (LAGODZINSKI), A., i, 82.
- 2:5-Dimethoxybenzoyl-2:5-dimethoxy-anilide** (KAUFFMANN and GROMBACH), A., i, 288.
- Di-p-methoxybenzoylhydrazide** and its dichloride and diethyl ether (STOLLE and BAMBACH), A., i, 709.
- Di-p-methoxybenzoyl- ψ -methylthiocarb-amides**, s - and as - (JOHNSON and JAMESON), A., i, 352.
- 2:5-Dimethoxy- α -benzylstilbene** and its bromo-derivative (KAUFFMANN and GROMBACH), A., i, 287.
- 2:5-Dimethoxydeoxybenzoin**. See Phenylacetilyquinol dimethyl ether.
- 3:3'-Dimethoxydibenzyl, 4:4'-dihydroxy-** and its bromide (MANCHOT and ZAHN), A., i, 752.
- p-Dimethoxydibenzyl** and its bromide (MANCHOT and ZAHN), A., i, 752.
- oo-Dimethoxydiphenyl sulphide** and its sulphone (MAUTHNER), A., i, 422.
- 2:5-Dimethoxydiphenyl-benzyl-, -methyl-, and -ethyl-carbinols** (KAUFFMANN and GROMBACH), A., i, 285.
- 2:2'-Dimethoxydiphenylmethane**, 5:5'-dibromo- (DIELS and ROSENmund), A., i, 674.
- 2:5-Dimethoxy- α -diphenylpropylene** and its bromo-derivatives (KAUFFMANN and GROMBACH), A., i, 285.
- $\alpha\gamma$ -Dimethoxyheptane**, δ -chloro- (HAMONET), A., i, 58.
- $\alpha\gamma$ -Dimethoxyheptane- δ -ol** (HAMONET), A., i, 58.
- 4:5-Dimethoxy- α -hydrindone** and its isonitroso-derivative (PERKIN and ROBINSON), P., 160.
- 3:4-Dimethoxy-1-methylanthraquinone**. See 1-Methylalizarin 3:4-dimethyl ether.
- 3:4-Dimethoxy-6-methylphenanthrene** and its dibromide and 9-carboxylic acid (PSCHORR and QUADE), A., i, 849.
- 3:4-Dimethoxy-8-methylphenanthrene** and its 9-carboxylic acid (PSCHORR and TAPPEN), A., i, 849.

- 2:5-Dimethoxypalmitylbenzene** and its phenylhydrazone (KAUFFMANN and GROMBACH), A., i, 287.
- 3:4-Dimethoxyphenanthrene**, 8-bromo-, and its 9-carboxylic acid and 8-hydroxy-, lactone of (PSCHORR and POPOVICI), A., i, 850.
- 3:4-Dimethoxyphenanthrene-8:9-dicarboxylic acid** and anhydride (PSCHORR and TAPPEN), A., i, 850.
- Dimethoxyphenanthryl glycol** and its acetate (PSCHORR and KARO), A., i, 878.
- 1:9-Dimethoxyphenazine**, 2:3-diamino-8-hydroxy- (FICHTER and SCHWAB), A., i, 842.
- Di-m-methoxyphenyl sulphide** (MAUTHERNER), A., i, 949.
- 2:5-Dimethoxyphenylglyoxylic acid**, ethyl ester (KAUFFMANN and GROMBACH), A., i, 287.
- 2:5-Di-p-methoxyphenyl-1:3:4-oxadiazole** and -triazole and their compounds with silver nitrate (STOLLÉ and BAM-BACH), A., i, 710.
- 2:5-Dimethoxy-a-phenylstyrene** and -phenylstilbene and their bromo-derivatives (KAUFFMANN and GROMBACH), A., i, 286.
- Dimethoxyphenyl-**. See also Phenyl-dimethoxy-.
- 2:5-Dimethoxyphthalic acid** and its anhydride (PERKIN and WEIZMANN), T., 1658.
- 4:5-Dimethoxyphthalic acid**. See *m*-Hemipinic acid.
- p-Dimethoxy-phthalic anhydride** and -phthalimide (THIELE and GÜNTHER), A., i, 745.
- Di-p-methoxystyrylpypyrazine** and its additive salts (FRANKE), A., i, 47.
- 4:5-Dimethoxy-o-tolualdehyde** and its oxidation, and hydrazone and semi-carbazone (PERKIN and WEIZMANN), T., 1650.
- 4:5-Dimethoxy-o-tolnic acid**, formation of (PERKIN and WEIZMANN), T., 1651.
- Dimethoxytolyl-**. See Tolylmethoxy-.
- 2:5-Dimethoxytriphenyl-carbinol** and its ethyl ether and -methane (KAUFFMANN and GROMBACH), A., i, 286.
- Dimethoxyvinylphenanthrene**, *pentabromo*- (PSCHORR and KARO), A., i, 878.
- Dimethyl acetone-*rhomboside*** and its hydrolysis (PURDIE and YOUNG), T., 1200; P., 201.
- $\alpha\alpha$ -Dimethyl acids**, $\beta\gamma$ -dibromo-, action of alkali carbonates on (COURTOT), A., i, 788, 925.
- $\alpha\gamma$ -Dimethylaconitic acid**, formation of (ROGERSON and THORPE), T., 647; P., 87.
- 3:7-Dimethylacridine**, 2:8-dihydroxy-, and its diacyl derivatives (ULLMANN and FITZENKAM), A., i, 46.
- $\beta\beta$ -Dimethylacrylic acid**, α -cyano- (KNOVENAGEL), A., i, 482.
- $\alpha\alpha$ -Dimethyladipic acid**, preparation of (BLANCO), A., i, 523.
- Dimethyladipic acids**, $\alpha\alpha$ - and $\beta\beta$ -, separation of (CROSSLEY and RENOUE), T., 1552; P., 252.
- Dimethylallyl alcohol** and its acetate and phenylcarbamate (COURTOT), A., i, 789.
- Dimethylallylamine** and its picrate (KNORR and ROTH), A., i, 458.
- Dimethylallylcarbinol** and its phenylcarbamate (COURTOT), A., i, 926.
- Dimethylamine**, platinum compounds of (JÖRGENSEN), A., i, 339; (JÖRGENSEN and SÖRENSEN), A., ii, 289.
- p-Dimethylaminoisoalkylbenzenes** and *trinitro*- (SACHS and MICHAELIS), A., i, 575.
- Dimethylaminoalkylcarbinols** and their benzoyl derivatives, hydrochlorides of (RIEDEL), A., i, 632.
- 1-Dimethylaminoanthraquinone**, 5:8-dibromo- (SÉVERIN), A., i, 508.
- p-Dimethylamino-o-benzhydryltriphenylcarbinol** (PÉRARD), A., i, 756.
- p-Dimethylaminobenzoic acid**, amino-, and its acetyl derivative, hydroxy-, and nitro- (REVERDIN and DELÉTRA), A., i, 273.
- 4'-Dimethylaminobenzophenone**, 5-chloro-2-amino-, and its acetyl derivative (ZINCKE and PRENTZELL), A., i, 110.
- p-Dimethylamino-benzophenoneoxime** and -benzhydrylamine and its hydrochloride (MERCK), A., i, 661.
- 4-Dimethylaminobenzophenone-3-sulphonic acid** and its salts and oxime (WILLSTÄTTER and GOLDMANN), A., i, 981.
- 5-Dimethylaminobenzothiazole** (SCHMIDT), A., i, 711.
- 2'-Dimethylaminobenzoylbenzoic acid**, 3:6-dibromo-, and its esters and acetyl and nitroso-derivatives (SÉVERIN), A., i, 508.
- 2'-Dimethylaminobenzylbenzoic acid**, 3:6-dibromo- (SÉVERIN), A., i, 508.
- p-Dimethylaminobenzylhydroxyl** ethyl ether (WILLSTÄTTER and GOLDMANN), A., i, 981.
- p-Dimethylaminobenzylideneacetone** and its oxime and phenylhydrazone (RUPE and SIEBEL), A., i, 859, 966.

- p-Dimethylaminobenzylideneacetophenone** and its phenylhydrazone (RUPE and PORAI-KOSCHITZ), A., i, 755.
- p-Dimethylaminobenzylidenehodanic acid** (BARGELLINI), A., i, 536.
- a-Dimethylaminobutyric acid** and its additive salts (DUVILLIER), A., i, 236.
- p-Dimethylaminobenzylideneacetone**, *p*-amino- and *p*-nitro- (RUPE and SIEBEL), A., i, 859.
- Dimethylaminodiethylaminodimethyl-ethylecarbinol** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 936.
- 5-Dimethylamino-1:2-dihydrobenzo-thiazyl** hydrogen sulphite (SCHMIDT), A., i, 711.
- 4'-Dimethylamino-2:5-dimethoxytri-phenylmethane** (KAUFFMANN and GROMBACH), A., i, 285.
- 4'-Dimethylaminodiphenylamine**, 3:5-dichloro-4-hydroxy- (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 308.
- s-Di-p-methylaminodiphenylamine** and its triacetyl derivative (GNEHM and SCHRÖTER), A., i, 211.
- Dimethylaminodiphenylanthracene** (PÉRARD), A., i, 756.
- Di-p-methylaminoditolylamine** and its tribenzoyl derivative (GNEHM and SCHRÖTER), A., i, 212.
- Dimethylaminoethyl benzoate** and its hydrochloride (CHEMISCHE FABRIK AUF AKTIEN VORM. E. SCHERING), A., i, 952.
- 3-Dimethylamino-9:10-dihydroxy-9-p-dimethylaminophenyl-10-*mp*-dimethyl-, 10-*p*-ethyl-, 10-*p*-methoxy-, and 10-*p*-ethoxy-phenyldihydroanthracenes** (GUYOT and STAEHLING), A., i, 18.
- p-Dimethylaminomercaptoanilinomethylsulphurous acid**, sodium salt (SCHMIDT), A., i, 711.
- Dimethylaminomethylidithylecarbinol** (SÜSSKIND), A., i, 133.
- 5-Dimethylamino-2-methyleneamino-phenyl mercaptan** and its ferrocyanide (SCHMIDT), A., i, 711.
- 5-Dimethylamino-2-methyleneamino-phenylthiolformaldehydethiosulphate** (SCHMIDT), A., i, 711.
- 1-Dimethylamino-5- and -8-phenoxy-anthraquinones** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 519.
- v-Dimethylaminophenyl-di-alkyl- and -aryl-methanes** (SACHS and MICHAELIS), A., i, 575.
- 1-p-Dimethylaminophenyl-1:2-diphenyl-1:2-dihydroisobenzofuran** and 2-hydroxy-, and its methyl and ethyl ethers (PÉRARD), A., i, 755.
- p-Dimethylaminophenylimesatine** (MÖHLAU and LITTER), A., i, 611.
- p-Dimethylaminophenyl- α -naphthyl- β -propionic acid** (FOSSE), A., i, 976.
- γ -Dimethylaminopropyl ethyl ether** and its aurichloride (KNORR and ROTH), A., i, 458.
- p-Dimethylamino-2-styrylquinoline** (*p*-dimethylaminobenzylidenequininaldine) (NOELTING and WITTE), A., i, 886.
- as-(4)-Dimethyl-2:4-diaminotoluene.** See 2:4-Tolylene-4-dimethyldiamine.
- Dimethylaminotrialkylcarbinyl esters**, salts of (RIEDEL), A., i, 843.
- s-Dimethyl-4:6-diamino-*m*-xylene.** See *m*-Xylylene-4:6-dimethyldiamine.
- Dimethylaniline**, action of bromine on (JACKSON and CLARKE), A., i, 828. action of *o*-nitrobenzaldehyde on, in presence of hydrochloric acid (ZINCKE and PRENTZELL), A., i, 110.
- Dimethylaniline**, bromo-derivatives, and their perbromides and salts (FRIES), A., i, 647.
- p-nitroso-**, action of ethylene dibromide on (TORREY), A., i, 79. additive compounds of, with phenols (TORREY and GIBSON), A., i, 242.
- Dimethylaniline-*p*-azo-*o*-nitrobenzaldehyde** and its phenylhydrazone (SACHS and KANTOROWICZ), A., i, 908.
- Dimethylarsine**, preparation and reactions of (DEHN and WILCOX), A., i, 150.
- Dimethylatropic acid** and its esters (BLAISE and COURTOI), A., i, 794.
- 5:5-Dimethylbarbituric acid**, acidic constants of (WOOD), T., 1835.
- 2:4-Dimethylbenzaldehyde** and its oxime and phenylhydrazone and 5-nitro- (GATTERMANN), A., i, 591.
- 3:4-Dimethylbenzaldehyde** and its azine, oxime, phenylhydrazone, and condensation with benzidine (GATTERMANN), A., i, 591.
- Dimethylbenzenes.** See Xylenes.
- Di-p-methylbenzilic acid** and its anhydride (GATTERMANN), A., i, 590. and its methyl ester, barium salt, and acetyl derivative (GISIGER), A., i, 958.
- 1:3-Dimethylbenziminazolol**, 6-chloro-nitro- (FISCHER and LIMMER), A., i, 896.
- 2:6-Dimethylbenzoic acid**, 4-hydroxy- (RABE and SPENCE), A., i, 89.
- Di-p-methylbenzoin** (GATTERMANN), A., i, 590.
- Dimethylbenzylideneacetones**, 2:4- and 3:4-, and their semicarbazones (GATTERMANN), A., i, 591.

- N-Dimethylbistrimethylenedi-imine** dimethochloride and its additive salts (KNORR and ROTH), A., i, 458.
- $\beta\gamma$ -Dimethyl- $\Delta\alpha$ -butadiene** and its dibromide (COURTOT), A., i, 926.
- $\beta\beta$ -Dimethylbutaldehyde** (DELACRE), A., i, 477.
- $\beta\gamma$ -Dimethylbutane**, $\beta\gamma$ -diamino-, and its additive salts and $\beta\gamma$ -dinitro- (BEWAD and PIRINSKY), A., i, 393.
- $\gamma\gamma$ -Dimethylbutane- β -ol**, β -cyano-, and its acetyl derivative (HENRY), A., i, 619.
- $\beta\beta$ -Dimethylbutane- $\alpha\gamma\delta$ -tricarboxylic acid**, ethyl ester, action of sodium and methyl iodide on (PERKIN and THORPE), T., 778.
- Dimethylbutenol** and its esters (COURTOT), A., i, 231.
- Dimethylisobutenylcarbinol** and its phenylcarbamate (COURTOT), A., i, 926.
- Dimethylisobutenylcyclo-hexanol** and its dibromide and acetate, -hexanone, -hexene, -hexenone and its oxime, phenylhydrazone, semicarbazone, and tetrabromide, and -hexylamine and its sulphate and phenylthiocarbamide (KNOEVENAGEL and SCHWARTZ), A., i, 963.
- $\gamma\gamma$ -Dimethyl- $\Delta\alpha$ -butylene** and $\beta\gamma$ -Dimethyl- $\Delta\beta$ -butylene (DELACRE), A., i, 477, 922.
- $\gamma\gamma$ -Dimethyl- $\Delta\alpha$ -butylene**, action of hydrogen bromide on (DELACRE), A., i, 476, 552.
- $\alpha\alpha$ -Dimethylbutyric acid**, $\beta\gamma$ -dibromo-, action of alkali carbonates on (COURTOT), A., i, 788.
- $\beta\gamma$ -dibromo-, β -hydroxy-, and its derivatives, and β -iodo- (COURTOT), A., i, 230.**
- $\beta\beta$ -Dimethylbutyric acid** (DELACRE), A., i, 477.
- $\alpha\gamma$ -dicyano-** (KNOEVENAGEL), A., i, 482.
- $\alpha\alpha$ -Dimethylbutyrolactone** (BLAISE and COURTOT), A., i, 793.
- β -bromo- and β -hydroxy-** (COURTOT), A., i, 788; (BLAISE and COURTOT), A., i, 927.
- β -bromo-**, reaction of, with quinoline (BLAISE and COURTOT), A., i, 927.
- 1:3-Dimethyl-8-isobutylxanthine** (TRAUBE and NITHACK), A., i, 215.
- Dimethylcarbindigotin** (FINDEKLEE), A., i, 43.
- Dimethylcinnamic acids**, 2:4- and 3:4- (GATTERMANN), A., i, 591.
- 3:5-Dimethylcitrazinic acid**, formation of (ROGERSON and THORPE), T., 648; P., 87.
- 3:13-Dimethylceroxonium** sulphates and carbinol base (DECKER and FERRARIO), A., i, 688.
- 4:6-Dimethylcoumarin**, azo-derivatives of (HEWITT and MITCHELL), T., 13.
- 4:7-Dimethylcoumarin** (FRIES and KLOSTERMANN), A., i, 276.
- $\alpha\alpha$ -Dimethylisocrotonic acid** and its derivatives (COURTOT), A., i, 231.
- 2:2'-Dimethyl-4:4'-dibenzeneazoazoxy-** benzene (BORSCHE and KÜHL), A., i, 321.
- Dimethylidiosbutylethane**. See Dodecane.
- Dimethylidethylpyrone** and its hydrochloride and platinichloride (BAIN), T., 1232; P., 196.
- 9:10-Dimethylidihydroanthracene**, 9:10-dihydroxy-, and its 9-methyl and -ethyl and dimethyl ethers (GUYOT and STAELING), A., i, 17.
- 1:1-Dimethyl- $\Delta^{3:5}$ -dihydrobenzene**, 3-amino-5-hydroxy-, and its reactions and additive salts and acetyl derivative (HAAS), T., 192.
- 2:4-Dimethylidihydrocinnamic acid** (GATTERMANN), A., i, 591.
- Dimethylidihydroresorcin** and its oximes, phenylhydrazone, and amine derivatives and their hydrochlorides (GITTEL), A., i, 169.
- condensation of, with ammonia, aniline, and *p*-toluidine (HAAS), T., 187; P., 17.
- condensation of, with *m*- and *p*-phenylenediamines (HAAS), T., 387; P., 63.
- disemicarbazone (HAAS), T., 198.
- 4:4'-Dimethylidihydrostilbazole** and its additive salts (LANGER), A., i, 38.
- β -hydroxy-(4-methylpicolyl-*p*-tolyl-alkine)**, and its additive salts (LANGER), A., i, 38.
- 3:4:3':4' Dimethylenedioxydi-benzyl-** and -stilbene (MANCHOT, ZAHN, and KRÄNZLEIN), A., i, 752.
- Dimethyllethylcarbinol diamino-** (FARBENFARIKEN VORM. F. BAYER & Co.), A., i, 936.
- Dimethyllethylpyrone** and its isomeride and hydrochloride and platinichloride (BAIN), T., 1228; P., 196.
- 3:7-Dimethyl-1-ethylxanthine**, soluble double salts of (RIEDEL), A., i, 716.
- Dimethylfulvene** and *isonitroso*- (THIELE and BALHORN), A., i, 639.
- $\alpha\beta$ -Dimethylglutaconic acid** (FEIST and BEYER), A., i, 336.
- $\beta\beta$ -Dimethylglutaric acid**, preparation of, and electrolysis of its salts (WALKER and WOOD), T., 598; P., 104.

- $\beta\beta$ -Dimethylglutaric acid**, α -cyano-, ethyl ester, sodium derivative, action of ethyl α -bromopropionate on (PERKIN and THORPE), T., 792.
- $\beta\beta$ -Dimethylglycidic acid**, ethyl ester, condensation of, with ethyl sodiomalonate (HALLER and BLANC), A., i, 625.
- Dimethylglyoximinecobalt salts**, compounds with ammonia and amines (TSCHUGAEFF), A., i, 815.
- $\beta\zeta$ -Dimethyl- $\Delta\beta\zeta$ -heptadiene** and its diazonide (HARRIES and TÜRK), A., i, 227.
- tert.-Dimethylheptenol**, ozonide of (HARRIES and LANGHELD), A., i, 226.
- $\beta\epsilon$ -Dimethyl- $\Delta\alpha\epsilon$ -hexadiene** and its diazonide (HARRIES and TÜRK), A., i, 228.
- $\beta\epsilon$ -Dimethyl- $\Delta\beta\epsilon$ -hexadiene** and its dibromide (HARRIES and TÜRK), A., i, 227.
- $\epsilon\epsilon$ -Dimethylhexane $\beta\epsilon$ -dibromide** (HARRIES and TÜRK), A., i, 227.
- $\alpha\beta\epsilon\zeta$ -tetrabromo- (*d*isobutetyl tetrabromide)** (POGORZELSKY), A., i, 131.
- $\beta\epsilon$ -dichloro-** (HENRY), A., i, 922.
- $\gamma\delta$ -Dimethylhexane**, $\gamma\delta$ -diamino-, and its additive salts, and $\gamma\delta$ -dinitro- (BEWAD and PIRINSKY), A., i, 393.
- 1:1-Dimethylcyclohexane** (1:1-dinethylhexahydrobenzene), supposed identity of, with dihydrolaurolene and dihydroisoalurolene (CROSSLEY and RENOUF), T., 26.
- 3-bromo-, action of alcoholic potassium hydroxide on (CROSSLEY and RENOUF), T., 1556; P., 253.
- $\beta\epsilon$ -Dimethylhexane- $\beta\epsilon$ -diol** (HARRIES and TÜRK), A., i, 227; (HENRY), A., i, 922.
- Dimethylcyclohexanols**, secondary, synthesis of three, and their phenylcarbamates (SABATIER and MAILHE), A., i, 253.
- 1.1-Dimethyl-3-cyclohexanone**. See 3-Keto-1:1-dimethylcyclohexane.
- Dimethylcyclohexanones**, isomeric, and their semicarbazones (SABATIER and MAILHE), A., i, 253.
- 1-Dimethylcyclohexan-3-one-1-carboxylic acid**, ethyl ester (KÖTZ and HESSE), A., i, 88.
- Dimethylcyclohexene**. See 1:1-Dimethyl- Δ^3 -tetrahydrobenzene.
- 1:1-Dimethyl- Δ^3 -cyclohexenone-5**. See 5-Keto-1:1-dimethyl- Δ^3 -tetrahydrobenzene.
- 1:1-Dimethyl- Δ^4 -cyclohexenone-3**. See 3-Keto-1:1-dimethyl- Δ^4 -tetrahydrobenzene.
- Di-1-methylcyclohexyl-3-amine** (WALLACH), A., i, 161.
- Dimethylcyclohexylamines**, α - and β -, and their derivatives (WALLACH, HÜTTNER, and ALTENBURG), A., i, 514.
- $\beta\epsilon$ -Dimethyl- Δ^4 -hexylene- β -ol** and its chloride (HENRY), A., i, 922.
- Dimethylhomocatechol**, preparation of, and its condensation with phthalic anhydride (PERKIN and WEIZMANN), T., 1649.
- $\alpha\beta$ -Dimethylhydantoin** (GABRIEL), A., i, 635.
- s-Dimethylhydrazine** and its additive salts and diacyl derivatives (KNORR and KÖHLER), A., i, 817; (KNORR), A., i, 893.
- Dimethylhydrazinium cyanide** (PETERS), A., i, 817.
- $\alpha\gamma$ -Dimethylitaconic acid** and its anhydride (FICHTER and SCHLAEPFER), A., i, 399.
- Dimethylketen** and its reactions (STAUDINGER and KLEVER), A., i, 234.
- as-Dimethyl-leucothionine** and its hydrochloride (GNEHM and KAUFLER), A., i, 389.
- Dimethylmalonic acid** and its amide (MEYER), A., i, 137.
- Dimethylmandelic acids**, 2:4- and 3:4- (GATTERMANN), A., i, 591.
- N-Dimethyl- β -naphthylamine- β -sulphonic acid** and its potassium salt (SMITH), T., 1507; P., 236.
- 1:5-Dimethylcycloocta- $\Delta^{1:5}$ -diene** and its ozonides (HARRIES), A., i, 30.
- $\gamma\gamma$ -Dimethyl- $\Delta^{\alpha\gamma}$ -octadienylbenzenes** and its dichloride and tetrabromide (KLAGES and SAUTTER), A., i, 489.
- $\beta\zeta$ -Dimethyloctane- $\gamma\beta$ -diol**, preparation of (SEMMLER), A., i, 785.
- $\gamma\gamma$ -Dimethyl- Δ^{α} -octenylbenzene**, and α -hydroxy- (KLAGES and SAUTTER), A., i, 489.
- $\gamma\gamma$ -Dimethyloctylbenzene** and its sulphonic acid (KLAGES and SAUTTER), A., i, 490.
- s-Dimethyloxamide**, *N*-dibromo- and *N*-dichloro- (CHATTAWAY and LEWIS), T., 160; P., 18.
- $\beta\delta$ -Dimethyl- $\Delta^{\alpha\gamma}$ -pentadiene** and its dibromide (COURTOI), A., i, 927.
- $\beta\delta$ -Dimethylpentane**, physical constants of (KONOWALOFF), A., i, 129.
- $\beta\beta$ -Dimethylpentanetricarboxylic acid** ethyl ester (BLANC), A., i, 399.
- Dimethylcyclopentanone** and its semicarbazone (BLANC), A., i, 523.

- $\alpha\alpha$ -Dimethyl- $\Delta\beta$ -pentenoic acid**, and its ethyl ester, salts, amide, anilide, benzylamide, chloride, and phenylhydrazide (COURTOT), A., i, 396.
- $\alpha\alpha$ -Dimethyl- $\Delta\gamma$ -pentenoic acid (β -vinyl-pivalic acid)**, β -hydroxy-, and its ethyl ester, salts, dibromide, and phenylurethanes (BLAISE and COURTOT), A., i, 553.
- $\beta\beta$ -Dimethyl- $\Delta\gamma$ -pentenol** and its acetate (COURTOT), A., i, 396.
- 3:9-Dimethylphenothiazine** and its salts (KEHRMANN and MODEBADZÉ), A., i, 306.
- Dimethylphenoxyethylcarbinol** and its phenylurethane (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBERN-SIBBERS, and RIEBEL), A., i, 582.
- Dimethylphenyl-** See Xylyl-.
- Dimethylphenylenediamine.** See Phenylenedimethyldiamine-.
- Dimethylpicrazide** (KNORR and KÖHLER), A., i, 817.
- $\beta\beta$ -Dimethylpimelic acid**, synthesis of (BLANC), A., i, 399.
- 1:4-Dimethylpiperazine** dimethochloride, synthesis and degradation of an octacyclic nuclear homologue of (KNORR and ROTH), A., i, 457.
- $\beta\beta$ -Dimethylpivalic acid.** See $\alpha\alpha\beta$ -Trimethylbutyric acid.
- $\beta\beta$ -Dimethylpropane.** See Tetramethylmethane.
- $\alpha\alpha$ -Dimethylpropenylacetic acid.** See $\alpha\alpha$ -Dimethyl- $\Delta\beta$ -pentenoic acid.
- $\alpha\alpha$ -Dimethylisopropenylacetic acid.** See $\alpha\alpha\beta$ -Trimethyl- $\Delta\beta$ -butenoic acid.
- Dimethylisopropenylcarbinol** and its phenylcarbamate (COURTOT), A., i, 925.
- Dimethylpropylamine**, γ -chloro-, and its additive salts (KNORR and ROTH), A., i, 458.
- Dimethylisopropylcarbinol**, action of acetyl chloride on (HENRY), A., i, 329; (DELACRE), A., i, 551.
- 2:2'-Dimethyl-5:5'-diisopropyl-4:4'-dibenzenearazoxybenzene** (BORSCHE and KÜHL), A., i, 321.
- 3:4-Dimethyl-2-isopropylcyclopentene-5-one-1-oxalic acid**, ethyl ester, and its semicarbazone (KÖRTZ, BIEBER, and SCHÜLER), A., i, 668.
- Dimethylpropylpyrone** and its isomeride (BAIN), T., 1234; P., 196.
- 2:5-Dimethylpyrazine**, action of, on aldehydes (FRANKE), A., i, 47.
- 2:4-Dimethylpyridine.** See 2:4-Lutidine.
- 3:5-Dimethylpyridine-4-carboxylic acid**, 2:6-dihydroxy- See 3:5-Dimethylcitrazinic acid.
- 2:6-Dimethyl-4-pyridone-3:5-dicarboxylic acid**, 1-hydroxy- (PALAZZO), A., i, 701.
- Dimethylpyrone**, compounds of, with trichloroacetic acid, electrical conductivity of solutions of, in ethyl bromide, chloroform, and benzene (PLOTNIKOFF), A., ii, 144, 419.
- methiodide and methochloride platinichloride** (KEHRMANN and DUTTENHÖFER), A., i, 447.
- Dimethylpyronedicarboxylic acid**, ethyl ester, action of hydroxylamine on (PALAZZO), A., i, 701.
- 2:6-Dimethylquinoline**, condensation of, with aromatic aldehydes (GASDA), A., i, 41.
- 2:8-Dimethylquinoline**, condensation of, with aldehydes (HOFFMANN), A., i, 40.
- 2:6-Dimethylquinoline-*p*-methoxyquinolinecyanine ethiodide** (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 716.
- Dimethyl rhamnose** and its reaction with methyl alcohol and with phenylhydrazine (PURDIE and YOUNG), T., 1200; P., 201.
- Dimethylsemicarbazide** (KNORR and KÖHLER), A., i, 817.
- 2:4-Dimethyl- α -stilbazole** and its platinichloride (KOENIGS and BENTHEIM), A., i, 37.
- 4:4'-Dimethyl-stilbazole** and its additive salts and -stilbazoline (LANGER), A., i, 38.
- Di-*p*-methylstyrylpypyrazine** and its additive salts (FRANKE), A., i, 47.
- Dimethylsuccinic acids**, preparation of (HIGSON and THORPE), T., 1463; P., 242.
- 1:1-Dimethyl- Δ^3 -tetrahydrobenzene**, 3-amino-5-imino-, additive salts of (HAAS), T., 194.
- C-Dimethyltetrazoline** and its iodides (RUHEMANN), A., i, 465.
- action of aldehydes and methyl iodide on (RUHEMANN), T., 1270; P., 238.
- Dimethylthioncarbamic acid**, phenyl ester (RIVIER), A., i, 948.
- as*-Dimethylthionine** and its chloride (KEHRMANN and DUTTENHÖFER), A., i, 460.
- Dimethyl- α - and -*p*-toluidines**, bromoderivatives, and their perbromides (FRIES), A., i, 648.
- $\alpha\gamma$ -Dimethyltricarballylic acid**, *trans*-, and its anhydro-acid (PERKIN and THORPE), T., 794.
- $\beta\mu$ -Dimethyltridecane- $\alpha\alpha\omega$ -tetracarboxylic acid**, ethyl ester (KÖRTZ and KÄYSER), A., i, 668.

- 1:1'-Dimethyl-4:4'-trimethylenedicyclohexane-3:3'-dione** and its semicarbazone (KÖTZ and KÄYSER), A., i, 668.
- 4:4'-Dimethyl-1:1'-trimethylenedicyclohexane-2:2'-dione-1:1'-dicarboxylic acid**, ethyl ester (KÖTZ and KÄYSER), A., i, 667.
- Dimethyltropic acid**, ethyl ester (BLAISE and COURTOT), A., i, 795.
- $\beta\kappa$ -Dimethylundecane- $\alpha\eta\lambda$ -tetracarboxylic acid**, ethyl ester (KÖTZ and KÄYSER), A., i, 667.
- $\alpha\alpha$ -Dimethyl- $\beta\gamma$ -unsaturated acids**, lactonisation of (BLAISE and COURTOT), A., i, 793.
- Dimethyluracils**, oxidation of (BEHREND and HUFSCHEIDT), A., i, 311.
- α - and β , acidic constants of** (WOOD), T., 1833.
- Dimethyluracilcarboxylic acid**, nitro- (BEHREND and HUFSCHEIDT), A., i, 311.
- $\alpha\alpha$ -Dimethylvaleric acid**. See Ethyl-pivalic acid.
- $\beta\beta$ -Dimethylvaleric acid**, δ -bromo-, and its ethyl ester (BLANC), A., i, 399.
- $\alpha\alpha$ -Dimethylvalerolactone** (BLAISE and COURTOT), A., i, 793.
- β -bromo-** (COURTOT), A., i, 396. reaction of, with quinoline (BLAISE and COURTOT), A., i, 927.
- β -bromo- and β -hydroxy-** (COURTOT), A., i, 789.
- $\beta\beta$ -Dimethylvalerolactone** (BLANC), A., i, 399.
- Dimethylxanthines**. See Paraxanthine, Theobromine, and Theophylline.
- Dinaphthacridines** (SENIER and AUSTIN), T., 1387; P., 240.
- Dinaphthapryryl radicles**, introduction of, into electro-negative molecules (FOSSE and ROBYN), A., i, 756.
- Dinaphthapryryl-acetic, -propionic, - α -isobutyric, -isovaleric, and -succinic acids** (FOSSE), A., i, 691.
- Dinaphthapryryl-acetyl- and -benzoylacetones** (FOSSE and ROBYN), A., i, 756.
- Dinaphthapryryl-cyanoacetic and -malonic acids**, ethyl esters (FOSSE and ROBYN), A., i, 757.
- Dinaphthazines**, $\alpha\beta$ - and $\beta\beta$, diamino- and dinitro- (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 543.
- Di- β -naphtholmethylene-amine** and -hydroxylamine and their hydrochlorides (BETTI), A., i, 654.
- Di- β -naphthoxydiphenylmethane** (CLOUGH), T., 776; P., 109.
- Di- α -naphthoylhydrazide dichloride** (STOLLE and BAMBACH), A., i, 710.
- Di- α -naphthyl diselenide** (TABOURY), A., i, 834.
- Dinaphthyl disulphide**, dihydroxy-, preparation of (ULLMANN and BÜHLER), A., i, 45.
- Dinaphthyldiphenyl**. See Diphenyldinaphthyl.
- Dinaphthylene dioxide** (NEIL), A., i, 356.
- Di-2:3-naphthylene dioxide** (ULLMANN and STEIN), A., i, 258.
- Di- α - and - β -naphthylmethylsulphines**, additive salts of (KEHRMANN and DUTTENHÖFER), A., i, 83.
- 2:5-Di- α -naphthyl-1:3:4-oxadiazole** (STOLLE and BAMBACH), A., i, 710.
- Dinitro-compounds**, *o*- and *p*-, aromatic, reduction of (MEISENHEIMER and PATZIG), A., i, 642.
- Diocetylacetic acid**. See α -Octyldecoic acid.
- Dionium ring systems**, conjugated (DECKER), A., i, 874.
- Diosphenol** (*buchu-camphor*), reactions of, and its oxime and dibromo- and acyl derivatives, and phenylurethane (SEMMLER and MCKENZIE), A., i, 373.
- s-Dioxanilide**, *p*-mono- and 2:4-*di*-chloro- (CHATTAWAY and LEWIS), T., 158; P., 18.
- Dioximes and similar compounds** (TSCHUGAEFF), A., i, 984. behaviour of, towards sodium hypochlorite (PONZIO), A., i, 482.
- Dioximidosuccinic acid**, ethyl ester (WAHL), A., i, 624.
- Dioximines** (TSCHUGAEFF), A., i, 814.
- Dioxydiethylpyrimidine**, cyanoimino- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 538.
- 2:6-Dioxy-5:5-diethylpyrimidine**, 4-imino-, sodium derivative (MERCK), A., i, 987.
- 4:6-Dioxy-5:5-diethylpyrimidine**, 2-thio- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 461.
- 2:6-Dioxy-5-ethoxypyrimidine** (JOHNSON and MCCOLLUM), A., i, 705.
- 2:4-Dioxy-5-ethylpyrimidine**, 6-amino- (JOHNSON and JOHNS), A., i, 456.
- 2:6-Dioxy-5-ethylpyrimidine** (JOHNSON and MENGE), A., i, 986.
- 2:6-Dioxy-3-methylpyrimidine**, 4-amino- (MERCK), A., i, 703.

- 2:6-Dioxypyrimidine, 4-amino-** (MERCK), A., i, 537, 703.
4:5-diamino-, 3-methyl and 1:3-dimethyl derivatives, action of aldehydes on (TRAUBE and NITHACK), A., i, 214.
- 4:6-Dioxypyrimidine, 2-thio-, and its 5-alkyl derivatives** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 893.
- 5:6-Dioxypyrimidine, 2-amino-** (JOHNSON and JOHNS), A., i, 114.
- Dicyclopentadiene and its nitrosochlorides and additive salts** (WIELAND), A., i, 417.
 compounds of mercuric chloride with alcoholic solutions of (HOFMANN and SEILER), A., i, 786.
 pyridinium bromide and chloride, nitroso- (RULE), T., 1342; P., 235.
 halogen-nitroso-derivatives and their conversion into oxime derivatives (RULE), T., 1340; P., 235.
- Dicyclopentadienebenzoquinone and its derivatives** (ALBRECHT), A., i, 676.
- Dicyclopentadienenitrolpiperidine and its salts and reduction** (RULE), T., 1343; P., 235.
- Dipentene, density, magnetic rotation, and refractive power of** (PERKIN), T., 850.
 chlorocyan- (LAPWORTH), T., 956.
- Dipeptide, formation of a, by hydrolysis of silk fibroin** (FISCHER and ABDERHALDEN), A., i, 326, 718.
- Dipeptides, formation of, by the hydrolysis of proteids** (FISCHER and ABDERHALDEN), A., i, 718.
- Diphenacyl, α - and β -bromo-, formula of, and β -hydroxy- (EVANS), A., i, 270.**
- s-Diphenacylomethylamine and its additive salts** (SCHÄFER and TOLLENS), A., i, 574.
- Di-o-phenetidinedisulphonic acid, preparation of** (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 950.
- $\gamma\gamma$ -Di-p-phenetidinobutane- $\alpha\beta$ -dicarboxylic acid, ethyl ester and phenetidide of** (ROSSI), A., i, 983.
- 4:4'-Diphenetole-3-mono- and -3:3'-disulphonic acids** (MOIR), P., 259.
- Diphenetylphenylsulphonium and its platinichloride** (SMILES and LE ROSSIGNOL), T., 705; P., 24, 87.
- Diphenetyl sulphone** (SMILES and LE ROSSIGNOL), T., 707; P., 24, 87.
- Diphenic acid, 4:4' and 6:6'-diamino-, 6-amino-6'-hydroxy-, and 4-mono- and 4:4'-di-hydroxy- and its diacetyl derivative** (SCHMIDT and SCHALL), A., i, 23.
- Diphenol (4:4'-dihydroxydiphenyl), new derivatives of** (MOIR), P., 259.
 dibenzoate of, and dibromodinitro- (MOIR), P., 259.
- Diphenol-3:3'-di-, -3:5:3'-tri-, and -3:5:3':5'-tetra-sulphonic acids** (MOIR), P., 259.
- p-Diphenoldimethylmethane, action of bromine on** (ZINCKE and GRÜTERS), A., i, 172.
 octabromo-, and its acetyl derivative (ZINCKE and BÖTTCHER), A., i, 166; (AUWERS and SCHRÖTER), A., i, 261.
 octachloro-, and its acetyl derivative (ZINCKE and HUNKE), A., i, 738.
- Diphenyl tetraozonide** (HARRIES and WEISS), A., i, 228.
- Diphenyl, 4:4'-diamino.** See Benzidine.
 3-hydroxy-, and its benzoyl derivative and **6-carboxylic acid and its salts** (ERRERA and LA SPADA), A., i, 278.
 3:3'-dihydroxy-, and its dibenzoate (SCHULTZ and KOHLHAUS), A., i, 818.
 4:4'-dihydroxy-, oxidation of (WILLSTÄTTER and BENZ), A., i, 997.
 diiodo-, action of chlorine on, and diiodoso-, and its acetate (WERNER), T., 1633.
- 4-nitro-4'-amino-, and its acetyl derivative** (WILLSTÄTTER and KALB), A., i, 996.
- Diphenyl diselenide** *di-p*-bromo- and *di-p*-chloro- (TABOURY), A., i, 835.
 disulphide, oxidation of (STOECKER and KRAFFT), A., i, 568.
 2:2'-dinitro-4:4'-diamino- (GESELLSCHAFT FÜR CHEMISCHE INDUSTRIE IN BASEL), A., i, 323.
 dithiocarbonate (RIVIER), A., i, 948.
- Diphenylacetaldehyde and its azine, benzoylhydrazone, and semicarbazone** (KLAGES and KESSLER), A., i, 499.
- Diphenylacetamide, hydroxy-** (BUCHERER and GROLÉE), A., i, 351.
- Diphenylacetic acid, tetranitro-, ethyl ester, and its additive compounds** (WERNER and SUMMERER), A., i, 437.
- Diphenylacetone and its oxime, phenylhydrazone, and semicarbazone** (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBBERN-SIBBERS, and RIEBEL), A., i, 583.
- Diphenylacetophenone and its oxime** (KOHLER), A., i, 754.
- Diphenylacetyl disulphide** (JOHNSON, BATEMAN, PALMER, and BRAUTLECHT), A., i, 954.
- Diphenyladipamide, di-o-amino-, and its hydrochloride** (MEYER and JAEGER), A., i, 766.

- B₂-Diphenyladipic acid** and its isomeride and their methyl esters (HENLE), A., i, 669.
- B₂-Diphenyladipic diacetic anhydride** (HENLE), A., i, 669.
- Diphenyl-4-aldehyde** and its oxime, phenylhydrazone, and aniline derivative (GATTERMANN), A., i, 592.
- 1:3-Diphenylalloxan-phenylhydrazone, -p-nitrophenylhydrazone, and -benzyl-p-nitrophenylhydrazone** (WHITELEY), P., 200.
- Diphenylalimidineoxamide** and *di-p-nitro-* (SCHULTZ, ROHDE, and HERZOG), A., i, 890.
- Diphenylamine**, fusion curves for mixtures of phenanthrene and (v. NARBUTT), A., ii, 147.
- miscibility of, with carbon dioxide (BÜCHNER), A., ii, 731.
- oxidation of (WIELAND and GAMBARJAN), A., i, 453.
- action of hydrogen peroxide on sulphuric acid solutions of (USCHAKOFF), A., i, 159.
- nitrates (USCHAKOFF), A., i, 160.
- Diphenylamine, di-p-amino-**, new mode of formation of (BARBIER and SISLEY), A., i, 51.
- nitro-derivatives (JUILLARD), A., i, 12.
- 2:6-dinitro- (KEHRMANN and KAISER), A., i, 12.
- 4-nitro-2-amino-, *N*-2-formyl derivative of (v. WALTHER and KESSLER), A., i, 899.
- 3:6-dinitro-2-amino-5-hydroxy-, *N*-2-acetyl derivative of (MELDOLA), T., 1940.
- Diphenylaminesulphone** (BERNTHSEN), A., i, 536.
- Diphenylamine-3-sulphonic acid**, 4-hydroxy- (WIELAND and GAMBARJAN), A., i, 454.
- 1:4-Diphenyl-3:5-endoanilido-4:5-dihydro-1:2:4-triazole (nitron)** and its additive salts (BUSCH and MEHRTENS), A., i, 115.
- as a test for nitrates (BUSCH and MEHRTENS), A., i, 118.
- 9-Diphenylanthrone**, hydroxy-, and its acetyl derivative (LIEBERMANN and LINDENBAUM), A., i, 25.
- Diphenyl-arsine tribromide** and iodide and -arsinic acid (DEHN and WILCOX), A., i, 152.
- 1:3-Diphenylbarbituric acid** and its condensation with aromatic aldehydes and 5-amino-, and 5-*isonitroso*- and its salts and acetyl derivative (WHITELEY), P., 200.
- 1:2-Diphenylbenzimidazole**, 5-amino-, and its acetyl derivative, and 5-nitro-, and its salts (v. WALTHER and KESSLER), A., i, 900.
- 1:3-Diphenyl-5-benzylbarbituric acid** (WHITELEY), P., 200.
- Diphenylbiphenylenemethane**. See 9:9-Diphenylfluorene.
- Diphenylbis-azo- and -diazo-aminobenzenes** (VIGNON), A., i, 391.
- αδ-Diphenyl-Δ^{αγ}-butadiene**, picrate of (THIELE and HENLE), A., i, 572.
- Diphenylbutadienes**, isomeric, and their bromo-derivatives (STRAUS and MÜLLER), A., i, 78.
- αδ-Diphenylbutane**, β_γ-dihydroxy- (STRAUS and MÜLLER), A., i, 79.
- Δ²-Diphenylbutene** (STRAUS and MÜLLER), A., i, 79.
- Diphenylbuteninene** and its isomerides, and their bromo-derivatives (STRAUS and MÜLLER), A., i, 78.
- Diphenylcamphoryl-methane** and -methylene (HALLER and BAUER), A., i, 441.
- Diphenylcarbamide, tetraamino-, diacetyl derivative of** (CASSELLA & Co.), A., i, 712.
- Diphenylcarbazide** (*diphenylcarbohydrazide*) as indicator in the titration of iron with dichromate (BRANDT), A., ii, 309.
- Diphenylchloromethylcarbinol** (*as-diphenylchlorohydrin*) (KLAGES and KESSLER), A., i, 498.
- Diphenyldiacetylene** and its di- and tetrabromides (STRAUS and MÜLLER), A., i, 78.
- Diphenyldibenzylhydrazine** and its hydrochloride (FRANZEN and ZIMMERMANN), A., i, 702.
- Diphenyldiethylaminomethylcarbinol** and its additive salts (PAAL and WEIDENKAFF), A., i, 236; (KLAGES and KESSLER), A., i, 498.
- 1:1-Diphenyl-1:2-dihydroisobenzofuran** and its melting point (GUYOT and CATEL), A., i, 761.
- 3:6-Diphenyl-1:4-dihydrotetrazine** (*s-diphenyltetrazoline*), benzylidene derivative (STOLLÉ), A., i, 315; (RUHEMANN), A., i, 465.
- di-p-bromo*-, and its hydrochloride (STOLLÉ and WEINDEL), A., i, 708.
- and its 1:2-dibenzoyl derivative, and *di-p-chloro*- (STOLLÉ and WEINDEL), A., i, 708.
- 3:6-Diphenyl-1:2- and -1:4-dihydro-1:2:4:5-tetrazines**, 1-benzoyl derivatives (STOLLÉ and THOMAE), A., i, 462.

- Diphenyldi- α -hydroxynaphthylmethane** and its diacetyl and dibenzoyl derivatives (CLOUGH), T., 773; P., 109; (SHRIMPTON), A., i, 659.
- 1:3-Diphenyl-5:5-dimethylbarbituric acid** (WHITELEY), P., 200.
- Diphenyl-3:3'-disulphonic acid.** See Dibenzene-3:3'-disulphonic acid.
- Diphenyldi-2:4:5-trimethoxyphenylmethyl ether** (FABINYI and SZÉKI), A., i, 424.
- Diphenylene dioxide** (ULLMANN and STEIN), A., i, 258.
- Diphenyleneacetic acid** and its ethyl ester, anhydride, anilide, phenylhydrazide and chloro-, ethyl ester, anilide, and chloride of (STAUDINGER), A., i, 861.
- $\gamma\gamma$ -Diphenylene- α -methylitaconic acid** and its anhydride (STOBBE and GOLLÜCKE), A., i, 361.
- 2:3-Diphenylenequinoxaline,** 5:7-dibromo-. See Phenanthraphenazine, 10:12-dibromo-.
- Diphenyleneketen** (STAUDINGER), A., i, 861.
- Diphenylethylamine,** hexanitro- (MULDER), A., i, 493.
- 1:4-Diphenyl-5-ethyl-3:5-endoanilido-4:5-dihydro-1:2:4-triazole** (BUSCH and MEHRTENS), A., i, 117.
- s-Diphenylethylene.** See Stilbene.
- as-Diphenylethylene glycol** (PAAL and WEIDENKAFF), A., i, 583.
and its diacetate (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBERN-SIBBERS, and RIEBEL), A., i, 581.
oxide (KLAGES and KESSLER), A., i, 498; (PAAL and WEIDENKAFF), A., i, 583.
- 9:9-Diphenylfluorene** (*diphenylbiphenyl-enemethane*) (ULLMANN and V. WURSTERBERGER), A., i, 76.
- Diphenylfulvene bromides** (THIELE and BALHORN), A., i, 640.
- Diphenyl-2-furylcarbinol** and its methyl ether (HALE, McNALLY, and PATER), A., i, 199.
- $\delta\delta$ -Diphenyl- α -furyl-fulgenic acid** and -fulgide (STOBBE and ECKERT), A., i, 101.
- 1:1-Diphenyl-d-galactohexitol**, preparation of (PAAL and WEIDENKAFF), A., i, 802.
- $\alpha\alpha$ -Diphenylhexane, $\alpha\beta\gamma\delta\epsilon\zeta$ -hexahydroxy-** (PAAL and HÖRNSTEIN), A., i, 401.
- $\gamma\delta$ -Diphenylhexane and β -one** (KOHLER), A., i, 428.
- $\beta\beta$ -Dimethylhexanetricarboxylic acid** and its ethyl ester (BLANC), A., i, 399.
- Diphenylhydrazine**, crystallography of (JAEGER), A., i, 112, 642.
- Diphenylhydrazone**s of a series of aldehydes (MAURENBRECHER), A., i, 985.
- Diphenylhydroxylamine,** 2:4-dinitro- and *p*-nitroso-, and their *ac*-forms, and the methyl ether of the *p*-nitroso-compound (WIELAND and GAMBARJAN), A., i, 830.
- 2:3-Diphenylisindolinone,** 3-hydroxy- (BÉIS), A., i, 884.
- Diphenylmethane**, 2:4'-diamino-, and its acetyl derivative (ZINCKE and PRENTZELL), A., i, 110.
- pp'*-diamino**, hydrazine derivatives of (FINGER and BAUMANN), A., i, 892.
- 2:4:2':4'-tetra**-amino-, and its dibenzoyl derivative (DUVAL), A., i, 314. *octabromo-4:4'-dihydroxy-*. See *p*-Diphenolmethane, *octabromo-*.
- Diphenylmethane series**, observations in the (DIELS and ROSEN MUND), A., i, 673.
reduction in the (DUVAL), A., i, 314.
- $\gamma\gamma$ -Diphenyl- α -methylitaconic acid** and its salts (STOBBE and NOETZEL), A., i, 362.
- Diphenylmethylamine**, bromo-derivatives, and their perbromides (FRIES), A., i, 649.
hexanitro- (MULDER), A., i, 493.
- 1:4-Diphenyl-5-methyl-3:5-endoanilido-4:5-dihydro-1:2:4-triazole** (BUSCH and MEHRTENS), A., i, 117.
- Diphenylmethylcarbinol** (PAAL and HÖRNSTEIN), A., i, 401.
- Diphenylmethyleneanthraquinone** (PADOVA), A., i, 742.
- $\gamma\gamma$ -Diphenyl- α -methylitaconic acid**, anhydride, and dibromide (STOBBE and GOLLÜCKE), A., i, 361; (STOBBE and NOETZEL), A., i, 362.
- Diphenylmethylolid**, hexahydroxy-, and its acetyl and benzoyl derivatives (PERKIN), T., 253; P., 42.
- $\gamma\gamma$ -Diphenyl- α -methylparaconic acid**, β -bromo- (STOBBE and NOETZEL), A., i, 362.
- 1:3-Diphenyl-5-methylpyrazole-4-carboxylic acid** and its nitro-derivatives and their ethyl esters (MINUNNI and LAZZARINI), A., i, 385.
hydroxy-. See 1-Phenyl-3-hydroxy-phenyl-5-methylpyrazole-4-carboxylic acid.
- 1:2-Diphenyl-5-methylpyrrole** and its 3-carboxylic acid and its ethyl ester (BORSCHT and FELS), A., i, 509.
- Diphenylmethylsulphine** and its additive salts (KEHRMANN and DUTTENHÖFER), A., i, 83.

- Diphenylnitrosoamine, *o*- and *p*-mono-** and 2:4'- and 4:4'-*di*-nitro-(JUILLARD), A., i, 12.
- 2:5-Diphenyl-1:3:4-oxadiazole** (STOLLÉ and THOMAE), A., i, 462.
- 2:5-Diphenyl-1:3:4-oxadiazole and -triazole, *di*-*p*-nitro-** (STOLLÉ and BAM-BACH), A., i, 711.
- Diphenyloxide-3-sulphonic acid, *p*-amino-** (AKTIEN-GESELLSCHAFT FÜR ANILINFABRIKATION), A., i, 658.
- Diphenylphenetyl sulphonium** and its platinichloride (SMILES and LE ROS-SIGNAL), T., 706; P., 24, 87.
- 10:10-Diphenyl-1:9-*o*-phenoxylenedi-hydroanthracene** (ULLMANN and TSCHERNAIK), A., i, 102.
- Diphenylphenoxyethylcarbinol** (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBBERN-SIBBERS, and RIEBEL), A., i, 581.
- Diphenylphthalamide,** *di*-*o*-amino- (MEYER and JAEGER), A., i, 767.
- 2:6-Diphenylpiperidone-3:5-dicarboxylic acid, esters, and their nitroso- and potassium derivatives and hydrochlorides** (PETRENKO-KRITSCHENKO and ZONEFF), A., i, 452.
- $\beta\gamma$ -Diphenylpivalic acid, β -hydroxy-, ethyl ester** (BLAISE and COURTOT), A., i, 795.
- $\alpha\gamma$ -Diphenylpropane, β -imino- α -cyano-, formation of** (ATKINSON and THORPE), T., 1930; P., 281.
- Diphenylpropylamine, hexanitro-** (MULDER), A., i, 493.
- $\alpha\gamma$ -Diphenylpropylene and its dibromide** (DIECKMANN and KÄMMERER), A., i, 820.
- $\alpha\alpha$ -Diphenylpropylene $\alpha\beta$ -glycol and its diacetate** (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBBERN-SIBBERS, and RIEBEL), A., i, 583; (TIFFENEAU and DORLENCOURT), A., i, 724.
- $\beta\beta$ -Diphenylpropylene oxide, and $\alpha\beta$ -glycol, phenyl ether and chlorohydrin of** (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBBERN-SIBBERS, and RIEBEL), A., i, 583.
- Diphenylquinacridine, tetranitro-** (ULLMANN and BROIDO), A., i, 190.
- Diphenylquinoxaline, *p*-chloro-** (FISCHER and LIMMER), A., i, 895.
- 2:3-Diphenylquinoxaline, 5:7-dibromo-** (JACKSON and RUSSE), A., i, 308.
- Diphenylsebacamide, *di*-*o*-amino-** (MEYER and MAIER), A., i, 766.
- Diphenylsilicone** (DILTHEY and EDUARD-OFF), A., i, 128.
- 1:1-Diphenyl-*d*-sorbitol, preparation of** (PAAL and HÖRNSTEIN), A., i, 802.
- Diphenylsuccinamide,** *di*-*o*-amino- (MEYER and JAEGER), A., i, 766.
- Diphenylsulphide-2:2'-disulphonic acid,** 4:4'-diamino-, and its bisdiazonium anhydride (SCHMIDT), A., i, 243.
- Diphenylsulphone,** *oo*-dihydroxy-, and its diacetyl derivative (MAUTHNER), A., i, 422.
- 3:6-Diphenyl-1:2:4:5-tetrazine,** *di*-*p*-bromo- (STOLLÉ and WEINDEL), A., i, 708.
- Diphenyl-*p*-tolylacetic acid, methyl ester** (BISTRZYCKI and v. SIEMIRADZKI), A., i, 136.
- 2:5-Diphenyl-1-*o*-tolyl-1:3:4-triazole** and its silver nitrate (STOLLÉ and THOMAE), A., i, 462.
- 2:5-Diphenyl-1:2:4-triazole** and its additive derivatives (EINHORN, BISCH-KOPFF, and SZELINSKI), A., i, 246.
- 2:5-Diphenyl-1:3:4-triazole, *di*-*p*-bromo-** (STOLLÉ and WEINDEL), A., i, 708.
- di*-*p*-bromo- and *di*-*m*-nitro-** (STOLLÉ and WEINDEL), A., i, 709.
- 1-hydroxy-** (STOLLÉ and THOMAE), A., i, 462.
- 1:3-Diphenyluramil.** See 1:3-Diphenyl-barbituric acid, 5-amino-.
- 1:3-Diphenyl-uric acid and ψ -uric acid, synthesis of** (WHITELEY), P., 200.
- $\alpha\beta$ -Diphenylvaleric acids** and their nitriles and their α -alkyl and α -benzoyl derivatives, and α -cyano- (KOHLER), A., i, 427.
- $\alpha\beta$ -Diphenylvalerophenone** (KOHLER), A., i, 429.
- Diphenylvioluric acid.** See 1:3-Diphenyl-barbituric acid, 5-isomitoso-.
- 2:5-Diphenyl-1-xylyl-1:3:4-triazole** (STOLLÉ and THOMAE), A., i, 462.
- Diphtheria bacillus.** See under Bacillus.
- Dipiperidino.** See Dipiperidyl.
- Dipiperidyldimethyl ethylcarbinol** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 936.
- Dipiperidyldipropyl ether** and its additive salts (GABRIEL and COLMAN), A., i, 881.
- Dipiperidyl-4-nitrophenyl-2-carbamide** (SPIEGEL and ÜTERMANN), A., i, 883.
- Dipivaloyl** and its monoxime (BOUVE-AULT and LOCQUIN), A., i, 784.
- Diploschistessic acid** (ZOPF), A., i, 872.
- Dipropaldehyde** tetraethylacetal, β -imino- (WOHL, HERTZBERG, and LOSANITSCH), A., i, 106.
- Diisopropenyl.** See $\beta\gamma$ -Dimethyl- $\Delta\alpha$ -butadiene.

- 2:5-Dipropenylpyrazine, γ -hexachloro-** (FRANKE), A., i, 47.
- Dipropylacetyl-p-phenetidine** (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 418.
- 5:5-Dipropylbarbituric acid** (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 538, 704.
- 3:5-Diisopropyl-2-isobutylpyridine.** See Valeritrene.
- Dipropylglycollic acid** (CRICHTON), T., 932; P., 162.
- Dipropylmalonic acid**, potassium ethyl ester-salt, electrolysis of (CRICHTON), T., 929; P., 162.
- Dipropylmalonyl-p-phenetidine** (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 497.
- Diquinazolylcarbamide** (BOGERT and CHAMBERS), A., i, 389.
- Diresorcinol**, hexabromo-, peculiar behaviour of, in alkaline solution (BECHHOLD), A., i, 173.
- Diresorcinolpyromellitate.** See Xanthylbenzene-2-carboxylactone-4:5-dicarboxylic acid, 3:6:9-trihydroxy-.
- Dirhizonic acid** and its salts (HESSE), A., i, 280.
- Disalicylideneacetonehydroxylamine-oxime** and its reduction and tetrabenzoyl derivative (MINUNNI and CIUSA), A., i, 95.
- Disazo-compounds**, mixed, from *p*-phenylenediamine with heterocyclic side-chains (BÜLOW and BUSSE), A., i, 717.
- Disazo-dyes**, yellow (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 121.
- Disinfectants**, bacteriological testing of (LLOYD), A., ii, 592.
- Disinfecting properties** and chemical constitution, relation between (BECHHOLD and EHRLICH), A., ii, 383.
- Disodium salts.** See under Sodium.
- Dispersion.** See under Photochemistry.
- Displacement**, reciprocal, of acids in heterogeneous systems (JOSEPH), T., 823; P., 82.
- Dissociation and Dissociation constants.** See under Affinity, chemical.
- Dissociation, electrolytic.** See under Electrochemistry.
- Di-2- and -4-stilbazylthiocarbamides** (BAUMERT), A., i, 910.
- Distillation** of liquids which are mutually insoluble (v. RECHENBERG and WEISSWANGE), A., ii, 72.
- in high vacua (WOHL and LOSANTSCH), A., ii, 72; (ERDMANN; WOHL), A., ii, 148.
- fractional, apparatus for, under constant pressure (PONI), A., ii, 14.
- Distillation, vacuum**, receiver for, rendered air-tight by mercury (UBBELOHDE), A., ii, 432.
- apparatus**, for solid substances (HAEHN), A., ii, 841.
- Distillation apparatus.** See also Condensers.
- Distribution.** See under Affinity, chemical.
- Distyrylchlorocarbinol** anhydrides and *p*-chloro-, methyl ether of (STRAUS and ECKER), A., i, 860.
- Distyryldichloromethane** and its halogen derivatives and their salts (STRAUS and ECKER), A., i, 859.
- 2:5-Distyrylpyrazine** and its additive salts (FRANKE), A., i, 47.
- Disulphidedisuccinic acid** (BIILMANN), A., i, 626.
- Disulphides**, action of, on organo-magnesium haloids (WUYTS), A., i, 257.
- unsaturated (FROMM), A., i, 656.
- action of phenylhydrazine on (FROMM and SCHNEIDER), A., i, 714.
- 2:6-Disulpho-1:8-naphthalic acid** and its barium salt and anilide (BARGELLINI), A., i, 184.
- Ditetrahydroquinolymethanes** (WEERMANN), A., i, 696.
- 4:4'-Dithioaniline** and its acetyl and dibenzylidene derivatives (HINSBERG), A., i, 654.
- Dithiobenzanilide** (HINSBERG), A., i, 655.
- Dithiobenzoyl disulphide** (HOUBEN and POHL), A., i, 847.
- Dithio-*p*-dimethylaminobenzaldehyde** and its hydrosulphide (MANCHOT, ZAHN, and KRÄNZLEIN), A., i, 753.
- Di-*a*-thionaphthoyl disulphide** (HOUBEN and POHL), A., i, 848.
- Dithionic acid.** See under Sulphur.
- Dithiophenylacetyl** disulphide (HOUBEN and POHL), A., i, 847.
- Dithiopiperonaldehyde** and its hydrosulphide (MANCHOT and ZAHN), A., i, 752.
- Dithiovanillin** and its benzoyl and bromoderivatives (MANCHOT and ZAHN), A., i, 752.
- Di-*p*-tolyl diselenide** (TABOURY), A., i, 834.
- Di-*o*-tolyl and Di-*m*-tolyl sulphides** (MAUTHNER), A., i, 949.
- Di-*p*-tolylacetaldehyde** and its oxime and semicarbazone (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBERN-SIBBERS, and RIEBEL), A., i, 582.

- Ditolyacetones**, *o*- and *p*-, and their oximes and semicarbazones (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBERN-SIBBERS, and RIEBEL), A., i, 583.
- Di-*o*-tolylamine**, *di-p*-amino-, new mode of formation of (BARBIER and SISLEY), A., i, 51.
- Di-*p*-tolylamine**, oxidation of (WIELAND and GAMBARJAN), A., i, 453.
- Di-*p*-tolylideneacetone** and its derivatives (GATTERMANN), A., i, 590.
- Ditolylmethane**, diamino-, hydrazine derivatives of (FINGER and BAUMANN), A., i, 892.
- Di-*p*-tolylmethane**, hexabromodi-*m*-hydroxy-, and its acetyl derivatives and compounds with bases (AUWERS, KIPKE, SCHRENK, and SCHRÖTER), A., i, 262.
- Di-*o*-tolylphenoxy methylcarbinol** (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBERN-SIBBERS, and RIEBEL), A., i, 582.
- $\beta\beta$ -Di-*p*-tolylpropylene** $\alpha\beta$ -glycol (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBERN-SIBBERS, and RIEBEL), A., i, 583.
- Di-*o*-tolylsuccinamide**, diamino-, and its hydrochloride (MEYER and JAEGER), A., i, 766.
- Di-*o*-tolylsuccinamide**, diamino- (MEYER and JAEGER), A., i, 766.
- Di-2:4:5-trimethoxy- α -phenylethylether**, preparation of (FABINYI and SZÉKI), A., i, 424.
- s-Ditrimethoxyphenylethylene** and its bromine compound (SZÉKI), A., i, 660.
- $\gamma\delta$ -Di-2:4:5-trimethoxyphenyl- Δ^{β} -hexene** and its dibromide (FABINYI and SZÉKI), A., i, 424.
- Diuresis**, phloridzin (BIBERFELD), A., ii, 564.
- Diurethaneglyoxalic acid** and its ethyl ester and amide (SIMON and CHAVANNE), A., i, 636.
- Diurethanepyruvic acid**, formation and dissociation of (SIMON), A., i, 404.
- salts and ethyl ester (SIMON), A., i, 404.
- s-Divinyl glycol**, diformate of (VAN ROMBURGH and VAN DORSSEN), A., i, 141.
- Dixanthyl** (FOSSE), A., i, 975.
- Dixanthylbenzene-2:4:5:6-tetracarboxylic acids**, *m*- and *p*-, 3:6:9:3':6':9'-hexahydroxy-, and their octabromoderivatives and their salts (SILBERRAD and ROY), T., 1802; P., 252.
- Dixanthylene tetrabromide and tetraiodide** (HANTZSCH and DENSTORFF), A., i, 746.
- Di-m-xylidilaconitic acid** (RUHEMANN), T., 1851; P., 284.
- Dodecahydroanthracene** (GODCHOT), A., i, 76.
- Dodecane** (*dimethyldeüisobutylethane*) (CLARKE and SHREVE), A., i, 473.
- dihydroxy-. See Methylisobutylpinacone.
- Dodecylthiophansulphone** (MABERY and QUAYLE), A., i, 395.
- Dognacskaite**, analysis of (NEUGEBAUER), A., ii, 767.
- Dogs**, fate of amino-acids and peptides in (ABDERHALDEN and TERUUCHI), A., ii, 293.
- Dolomite** and calcite, reaction for distinguishing (CORNUT), A., ii, 804.
- Doughyte** from Colorado (HEADDEN), A., ii, 38.
- Douglas fir**. See *Pseudotsuga taxifolia*.
- Drinking water**. See Potable water under Water.
- Drugs**, action of, on the heart of *Limulus* (CARLSON), A., ii, 877, 878.
- percolator for use in assaying (ELDRED), A., ii, 305.
- Ducks' eggs**. See Eggs.
- Dundasite** from North Wales (PRIOR), A., ii, 456.
- Duodenal juice**, proteolytic enzymes of the (ABDERHALDEN and RONA), A., ii, 462.
- isoDuryl bromide**, *o*-hydroxy- (AUWERS, JESCHECK, SCHRÖTER, MARKOVITS, and ROEVER), A., i, 355.
- Durylic acid**, *o*-nitro- (GATTERMANN), A., i, 592.
- Dye-acids** and **Dye-bases**, certain properties of (MICHAELIS), A., i, 444.
- Dyeing**, theory of (BILTZ and UTESCHER), A., ii, 78.
- animal textile fibres, process of (GELMO and SUIDA), A., i, 445.
- Dypnone** and its semicarbazone (COURTOT), A., i, 555.
- α*-isoDypnopinacolin**, reduction of (DAELS), A., i, 357.
- Dysentery**, the toxin of (LÜDKE), A., ii, 187.
- Dysprosium**, atomic weight of (URBAIN and DEMENITROUX), A., ii, 855.
- isolation and some atomic characteristics of (URBAIN), A., ii, 359.
- cathodic phosphorescence of, diluted with lime (URBAIN), A., ii, 674.

E.

Earths, rare, researches on the (URBAIN), A., ii, 359, 449, 510, 674, 855.
 chemistry of the (ESPOSITO), P., 20 ; (WYROUBOFF and VERNEUIL), A., ii, 88.
 determination of atomic weights of the (BRILL), A., ii, 27 ; (MATIGNON), A., ii, 232 ; (FEIT and PRZIBYLLO), A., ii, 754.
 spectra of the (LANGLET ; CROOKES), A., ii, 713.
 phosphorescence spectra of the (MARC), A., ii, 360.
 effect of calcium in developing the phosphorescence of the (CROOKES), A., ii, 360.
 halogen derivatives, reaction of an oxydase type exhibited by (FOUARD), A., i, 578.
 sulphates of, thermochemistry of (MATIGNON), A., ii, 169.

Earthworms, reactions of, to salts (PARKER and METCALF), A., ii, 784.

Echinus eggs. See under Eggs.

Eclampsia, sarcolactic acid in the blood, urine, and cerebro-spinal fluid in (FÜTH and LOCKEMANN ; ZWEIFEL), A., ii, 472.

Edestin from pumpkin seeds, amino-acids of (ABDERHALDEN and BERGHAUSEN), A., i, 999.
 See also Vitellin.

Egg-albumin, ash-free (ROSENKRANTZ), A., i, 998.
 hydrolysis of (ADENSAMER and HOERNES), A., i, 121.
 the monoamino-acids of crystallised (ABDERHALDEN and PREGL), A., i, 53.
 diamino-acids from (HUGOUNENQ and GALIMARD), A., i, 776.
 amount of phosphorus in (KAAS), A., i, 776.
 precipitation of, by other colloids and its relationship to the reactions of immune substances (FRIEDEMANN), A., i, 467.
 precipitation of, with sodium sulphate (GUERRINI), A., i, 466.

Eggs, Arbecia, centrifugalisation of (LYON), A., ii, 179.
 ducks', anatin and anatinin from the white of (PANORMOFF), A., i, 224.
 Echinus, effect of alkalis and acids and of alkaline and acid salts on growth and cell division in (MOORE, ROAF, and WHITLEY), A., ii, 180.

Eggs, Echinus and Pleuronectes, effect of acid and alkali and certain indicators on the development of (WHITLEY), A., ii, 180.
 hens', monoamino-acids of the membrane of (ABDERHALDEN and EBSTEIN), A., ii, 781.
 of the mollusc, *Lottia gigantea*, chemical maturation of (LOEB), A., ii, 94.
 pigeons', columbin from the white of (PANORMOFF), A., i, 223.
 preserved, composition of (BEYTHIEN and WATERS), A., ii, 408.
 sea urchin's, rôle of oxygen in the artificial parthenogenesis and development of (LOEB), A., ii, 371.
 inhibition of the toxic action of hypertonic solutions on, by potassium cyanide, and diminution of oxygen (LOEB), A., ii, 694.
 starfish, action of anaesthetics and narcotics on (BROWN), A., ii, 105.
 tortoise, monoamino-acids of the shells of (ABDERHALDEN and STRAUSS), A., ii, 781.

Egg substitutes, composition of (BEYTHIEN and WATERS), A., ii, 408.

Egg-yolk, estimation of sodium chloride in (L. and J. GADAIS), A., ii, 631.
 hens', proportion of lecithin in (MANASSE), A., ii, 781.

Elaidic acid, ozonide of (HARRIES and THIEME), A., i, 227.

Elasmobranch fishes, digestion in (SULLIVAN), A., ii, 100.

Elaterin, formula of, and its diacetyl and diphenylhydrazone derivatives, **Elateridin**, and **Elateric acid** (BERG), A., i, 596 ; (POLLAK ; v. HEMMELMAYR), A., i, 973.

Elder. See *Sambucus nigra*.

ELECTROCHEMISTRY :—

Electrochemistry of the iodine-oxygen compounds (BRUNNER), A., ii, 723.
 organic, physico-chemical side of (LÖB), A., ii, 145.

Accumulator, Jungner Edison, chemical composition and behaviour of the nickel oxide electrode in the (ZEDNER), A., ii, 65, 595.

Accumulators of material other than lead (ELBS ; GRÄFENBERG), A., ii, 3.

Cells, carbon (HABER and BRUNER), A., ii, 212.
 concentration, in methyl and ethyl alcohols (WILSON), A., ii, 144.
 electrolytic, experimental study of the three parts of an, and their relationships (HOSTELET), A., ii, 67.

ELECTROCHEMISTRY :—

- Cells**, galvanic, produced by the action of light (WILDERMAN), A., ii, 325.
 hydrogen-oxygen, oxide theory of (LORENZ and HAUSER), A., ii, 825.
 E.M.F. of (LEWIS), A., ii, 262, 843.
Electrical conductivity in relation to viscosity (WALDEN), A., ii, 335.
 and viscosity of solutions of certain salts in water, methyl alcohol, ethyl alcohol, acetone, and binary mixtures of these solvents (JONES and McMMASTER), A., ii, 737.
 of aqueous solutions, bearing of hydrates on the temperature-coefficients of (JONES), A., ii, 327.
 of crystallised conductors (JAEGER), A., ii, 653.
 of dielectrics, increase of, caused by the action of radium rays (BECKER), A., ii, 322.
 of concentrated aqueous solutions of electrolytes (GIBSON), A., ii, 722.
 of mixtures of electrolytes (BARMWATER), A., ii, 647.
 of flames (DAVIDSON), A., ii, 325.
 of metallic oxides (HORTON), A., ii, 260.
 of fused salts (ARNDT), A., ii, 418.
 of solutions in liquid iodine (LEWIS and WHEELER), A., ii, 650.
Dielectric constants, bibliography of (MATHEWS), A., ii, 3, 327.
 and electrolytic dissociation, relation between (BAUR), A., ii, 144, 827.
 of solutions of the oleates of heavy metals (KAHLENBERG and ANTHONY), A., ii, 825.
Insulators, solid, increase of conductivity of, caused by the action of radium rays (BECKER), A., ii, 322.
Glow discharge in the halogens, chlorine, bromine, and iodine (MATTIES), A., ii, 6.
Electric arc, high tension, spectrum of the, in air (WALTER), A., ii, 257.
Electric discharge, silent, chemical action of the (LÖB), A., ii, 43, 324.
Electric furnaces, experiments with Dennstedt and Heraeus (HOLDE; DENNSTEDT), A., ii, 398.
Electric resistance furnace for the measurement of high temperatures with the optical pyrometer (LAMPEN), A., ii, 598.
Electric vacuum furnace (ARSEM), A., ii, 652.

ELECTROCHEMISTRY :—

- Electric lamps**, filaments for incandescent (SIEMENS & HALSKA, AKTIEN-GESELLSCHAFT), A., ii, 213.
Electric measurements on metals (FAWSITT), A., ii, 328.
Electroaffinity of anions (ABEGG and PICK), A., ii, 833.
Electrocapillary function (GOUY), A., ii, 652, 725.
Electrochemical calculations (RICHARDS), A., ii, 417.
Electrochemical efficiency, relation of stability to, in hypochlorite production (DIGBY), A., ii, 265.
Electromagnetic fields, influence of very strong, on the spark spectra of vanadium, and platinum and iridium (PURVIS), A., ii, 421.
Electrical analysis. See under Analysis.
Electrical arrangement, new, of the Breslau University chemical laboratory (ABEGG), A., ii, 266.
Electrical changes induced by ultraviolet light (RAMSAY and SPENCER), A., ii, 715; (LE BON), A., ii, 825.
Electrical discharges of high frequency, effect of, on vapours of methyl alcohol and acetaldehyde (JACKSON and NORTHALL-LAURIE), T., 1190; P., 156.
 effect of, on acetylene (JACKSON and NORTHALL-LAURIE), P., 155.
Electrical phenomena accompanying the decomposition of ammonium (COEHN), A., ii, 725.
Electrical resistance, relations between the variation of, and the expansion of monoatomic solids (BRONIEWSKI), A., ii, 646.
Electrode, alkali, photoelectric effect and fall of potential at an, in argon, helium, and hydrogen (DEMNER), A., ii, 516.
 nickel oxide, chemical composition and behaviour of the, in the Jungner Edison accumulator (ZEDNER), A., ii, 65, 595.
 oxygen, potential of the (LEWIS), A., ii, 262.
Electrodes, use of, in electrolytic reductions (LAW), T., 1520; P., 237.
 influence of, on germination (MICHEELS and DE HEEN), A., ii, 115.
Electrode potentials, numerical values of (LUTHER; KRÜGER), A., ii, 5.
Anions, electroaffinity of (ABEGG and PICK), A., ii, 833.

ELECTROCHEMISTRY:—

- Anions**, antitoxic action of (LILLIE), A., ii, 188.
Anode, lead peroxide as, in the electrolytic oxidation of chromium sulphate to chromic acid (MÜLLER and SOLLER), A., ii, 66.
Anodes, ferromanganese, in solutions of sodium hydroxide (WHITE), A., ii, 725.
Anodic oxide formation and passivity (MÜLLER and SPITZER), A., ii, 158, 724.
Cathode, evolution of gas from the, in helium and argon (SKINNER), A., ii, 824.
Cathode potential and electrolytic reduction, relation between (TAFEL and EMMERT), A., ii, 216.
 and electrolytic reduction in sulphuric acid solutions (TAFEL), A., ii, 263.
Cathodic evaporation of metals in attenuated gases (KOHLSCHEUTTER and MÜLLER), A., ii, 418.
Cathodic pulverisations, mechanism of the production and the nature of (MAURAIN), A., ii, 65.
Electroscope, mineral which retards the discharge of an (BÜCHNER), A., ii, 645.
Electrolysis, model and experiment to demonstrate changes of concentration during (PALMAER), A., ii, 650.
 types of diaphragms most used in, and formulae proposed for calculating the yield (LOMBARDI), A., ii, 596.
 with alternating currents (LE BLANC), A., ii, 5; (COPPADORO), A., ii, 214, 849; (LÖB), A., ii, 215.
 periodical phenomena in (THIEL and WINDELSCHMIDT), A., ii, 827.
 of the alkali salts of organic acids (PETERSEN), A., ii, 331.
 of alkal chlorides (MALLET and GUYE), A., ii, 649.
Electrolyte, amphoteric associating, conditions of equilibrium of an, in presence of any number of non-amphoteric electrolytes (ROBERTSON), A., ii, 828.
Electrolytes, amphoteric, theory of (WALKER), A., ii, 723; (LUNDÉN), A., ii, 828.
 and pseudo-acids (LUNDÉN), A., ii, 265; (HANTZSCH), A., ii, 651.
 affinity constants of (JOHNSTON), A., ii, 733; (CUMMING), A., ii, 734; (WALKER), A., ii, 735.

ELECTROCHEMISTRY:—

- Electrolytes**, amphoteric, influence of certain, on amylolytic action (FORD and GUTHRIE), T., 76.
 relation between proteids and (LA FRANCA), A., ii, 789.
 equilibrium between proteids and (GUERRINI), A., i, 466; (GALEOTTI), A., i, 912.
 conductivity of concentrated aqueous solutions of (GIBSON), A., ii, 722.
 conductivity of mixtures of (BARMWATER), A., ii, 647.
 influence of radium radiations on the conductivity of (SABAT), A., ii, 643.
 experiment to demonstrate the non-validity of the tension law for (DOLEZALEK and KRÜGER), A., ii, 723.
 dissociation of (HENGSEN), A., ii, 73.
 action of, in relation to adsorption phenomena (BAYLISS), A., ii, 344.
 influence of strong, on partition phenomena (DAWSON), A., ii, 730.
 action of, on colloidal solutions (BURTON), A., ii, 841.
Electrolytic apparatus, new (ACREE), A., ii, 304.
Electrolytic conduction, specific inductive capacity, and chemical activity of liquids, relation between (MATHEWS), A., ii, 3, 327.
Electrolytic conductivity, relation of, to chemical activity (SAMMIS), A., ii, 835.
Electrolytic dissociation, theory of (KAHLENBERG), A., ii, 68.
 theoretical considerations on (BRILLOUIN), A., ii, 262.
 theory of, taking account of the electrical energy (MALMSTRÖM), A., ii, 67.
 relation between dielectric constant and (BAUR), A., ii, 144, 827.
Electrolytic oxidation (LAW), T., 1437; P., 197.
 and reduction of organic compounds, use of vanadium salts in the (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 862.
Electrolytic potential of certain peroxides (MAZZUCHELLI and BARBERO), A., ii, 647.
Electrolytic reduction (LAW), T., 1512, 1520; P., 237.
 and cathode potential, relation between (TAFEL and EMMERT), A., ii, 216.
 in sulphuric acid solutions (TAFEL), A., ii, 263.

ELECTROCHEMISTRY :—

- Electromotive force** and catalysis (BRINGHENTI), A., ii, 426.
 theory of, in polyphase and non-aqueous one-phase systems (ABEL), A., ii, 722.
- Electron**, the most probable value of the ratio (ϵ/μ_0) of the charge to the mass of the, in cathode rays (GUYE), A., ii, 516.
 kinetic theory of the, as the basis of the electron theory of radiation (TOMMASINA), A., ii, 419.
- Electrons**, results and problems of the theory of (LORENTZ), A., ii, 330.
- Ion-concentration** and ion-toxicity in systems of proteids, metallic salts, and water (LA FRANCA), A., ii, 789.
- Ionisation**, mechanism of, by solution (HINRICHSEN), A., ii, 839.
 by means of rays. See under Photochemistry.
 spontaneous, of air and other gases (GEITEL), A., ii, 329, 518.
 of saline vapours (MOREAU), A., ii, 651.
- Ionic conductivities** at 25° (BLACKMAN), A., ii, 722.
- Ionic size** in relation to the physical properties of aqueous solutions (BOUSFIELD), A., ii, 428.
- Ionic velocities**, accurate measurement of (DENISON and STEELE), A., ii, 68, 329.
- Ionic velocity** and viscosity, relation between (WALDEN), A., ii, 217.
- Ions**, genesis of, by collision and sparking-potentials in carbon dioxide and nitrogen (HURST), A., ii, 262.
 atomic conductivities of (BLACKMAN), A., ii, 647.
 transit of, in the electric arc (SWINTON), A., ii, 69.
 law of the independent migration of (PALMAER), A., ii, 650.
 produced by falling liquids (ASELMANN), A., ii, 329.
 hydration of the (BUCHBÖCK), A., ii, 519.
 relation between the velocity and the volume of, of certain organic acids and bases (LABY and CARSE), A., ii, 420.
 diminution of the mobility of, in fog (ELSTER and GEITEL), A., ii, 652.
 the factor of proportionality between the mobility and absolute velocity of (BRUNER), A., ii, 262.
 velocity of, produced by a flame (GIANFRANCESCHI), A., ii, 146.

ELECTROCHEMISTRY :—

- Ions**, velocity of, of alkali salt vapours at high temperatures (WILSON), A., ii, 420.
 formation of hydrosols by the interaction of (LOTTERMOSER), A., ii, 429.
 combination of a solvent with the (MORGAN and KANOLT), A., ii, 420.
 relation of, to contractile processes (LILLIE), A., ii, 869.
 from sulphur, and complex ions containing mercury (KNOX), A., ii, 608.
 complex, rate of migration of (MCBAIN), A., ii, 145.
 metal, introduction of the conception of the solubility of, with electromotive equilibrium (SMITS), A., ii, 518.
 positive and negative, can an element form both? (LE BLANC), A., ii, 67.
 positive, spectra of (STARK), A., ii, 321.
 relation between translation and radiation intensity of (STARK), A., ii, 514.
 of salt vapours, mobility of (MOREAU), A., ii, 68.
 recombination of (MOREAU), A., ii, 217.
 of pure water (WALKER), A., ii, 263.
- Polarisation**, anodic, abnormal, produced by halogen ions (MÜLLER and SCHELLER), A., ii, 64.
 galvanic, at a mercury cathode (LEWIS and JACKSON), A., ii, 648.
- Depolarisers**, action of (WEIGERT), A., ii, 417.
- Potentials**, amalgam (SUCHENI), A., ii, 826.
 cathode, electrode, and electrolytic. See Cathode, Electrode, and Electrolytic potentials, under Electrochemistry.
 iodine and ferric-ferrous (MAITLAND), A., ii, 328.
- Voltmeter**, silver titration (KISTIAKOWSKY), A., ii, 826.
- Voltmeters**, electrolytic-gas, with nickel electrodes, and the formation of nickel peroxide (RIESENFELD), A., ii, 723.
- Element**, new, in the atmosphere, spectrum of (SCHMIDT), A., ii, 821.
 can an, form both positive and negative ions? (LE BLANC), A., ii, 67.

Elements, new classification of (WOOD-IVISS), A., ii, 431.
 atomic weights of all, are commensurable and matter is uniform (HINRICHES), A., ii, 661.
 new, some phosphorescence spectra indicating the existence of (CROOKES), A., ii, 62.
 and compounds, wave-length tables of the spectra of the (BRITISH ASSOCIATION REPORT), A., ii, 821.
 capacity of, for entering into chemical combination (TAMMANN), A., ii, 348; (ABEGG), A., ii, 738.
 behaviour of, on impact (DOERMER), A., ii, 162; (OHMANN), A., ii, 228.
 hybrid (LE BLANC), A., ii, 742.
 non-magnetic, magnetic compounds of (WEDEKIND), A., ii, 70.
 solid, relation between the melting point and expansion-coefficient of the (WIEBE), A., ii, 331.
Elemi resins (VESTERBERG), A., i, 686.
Ellagic acid, molecular weight of, and its tetrabenzoyl derivative (PERKIN), T., 259; P., 42.
 reaction of, with sulphuric acid (PERKIN), P., 114.
 hydroxy-. See Flavellagic acid.
Embryo, formation of haemoglobin in the (HUGOUNENQ and MOREL), A., ii, 95.
Emulsin, occurrence of, in orchids (GUIGNARD), A., ii, 119.
 probable existence of, in yeast (HENRY and AULD), A., ii, 114.
 action of, on β -glucosides (RYAN and EBRILL), A., i, 918.
Enargite from Gilpin Co., Colorado (HEADDEN), A., ii, 37.
Endothermic compounds, formation of, at high temperatures (BERTHELOT), A., ii, 524.
Endotryptase, influence of high sugar concentration on the work of, in dead yeast cells (GROMOFF), A., ii, 569.
Energy. See under Affinity, chemical.
Enterokinase and trypsinogen (HAMILL), A., ii, 181.
Enzyme, acetic, composition of an (ALILAIRE), A., ii, 623.
 alcoholic, of yeast juice (HARDEN and YOUNG), A., i, 470.
 diastatic, in radishes (SAIKI), A., ii, 796.
 fat-splitting, in the "little stomach" (LAQUEUR), A., ii, 559.
Enzyme action. See under Affinity, chemical.

Enzymes contained in food and their rôle in digestion (SCHEUNERT and GRIMMER), A., ii, 462.
 which participate in nuclein metabolism (JONES and AUSTRIAN), A., ii, 561; (SCHITTENHELM), A., ii, 779.
 action of light on, in oxygen and in hydrogen, compared with the action of photodynamic substances (JODLBAUER and V. TAPPEINER), A., i, 720.
 in relation to concentrated electric light (SCHMIDT-NIELSEN), A., i, 780.
 a property of (DUCLAUX), A., ii, 660.
 physico-chemical nature and activity of (MARINO and SERICANO), A., i, 125.
 effect of heat on the activity of (CRAMER and BEARN), A., i, 780.
 laws of the action of, and heterogeneous catalysis (HENRI), A., ii, 13.
 catalysis by (SENTER), A., ii, 220.
 action of compressed gases on (FOŁ), A., ii, 696.
 action of quinine on (LAQUEUR), A., ii, 870.
 decomposition of fats by (FOKIN), A., ii, 793.
 velocity of hydrolysis of fat by (KANTZITZ), A., i, 328.
 synthetic action of acids contrasted with that of (ARMSTRONG), A., i, 127.
 rôle of, in the conversion of organic phosphorus compounds in germinating seeds (ZALESKI), A., ii, 881.
 of lysins, comparison of (WALKER), A., i, 327.
 gelatinolytic and proteolytic, method for the study of (FERMI), A., i, 392.
 lipolytic, behaviour of lecithin to (SCHUMOFF-SIMANOWSKI and SIEBER), A., ii, 871.
 organic and inorganic, comparison between (BERGELL), A., i, 56.
 pancreatic, influence of alcohol on the activity of (GIZELT), A., ii, 373.
 influence of bile on (V. FÜRTH and SCHÜTZ), A., ii, 871.
 action of, on leucine esters (WARBURG), A., ii, 691.
 formation and decomposition of esters by (POTTEVIN), A., i, 917.
 proteolytic, of animal tissue juices and of intestinal juice (ABDERHALDEN and TERUUCHI), A., ii, 873.
 of the pyloric and duodenal juices (ABDERHALDEN and RONA), A., ii, 462.

Enzymes, proteolytic, action of (ABDERHALDEN and HUNTER), A., ii, 782.
 respiration, formation of, in injured bulbs of *Allium Cepa* (KRASNOSSELSKI), A., ii, 572.
 of plants, work of, under different conditions (PALLADIN), A., ii, 570.
 formation of different, depending on the stage of development of plants (PALLADIN), A., ii, 481.
 of the embryonic alimentary canal (MENDEL), A., ii, 181.
 of the caecum (SCHEUNERT), A., ii, 463.
 of the placenta (CHARRIN and GOURPIL), A., ii, 294.

Enzymes. See also :—

Amylase.
 Catalase.
 Chymosin.
 Diastases.
 Emulsin.
 Endotryptase.
 Enterokinase.
 Erepsin.
 Fibrin ferment.
 Gummases.
 Invertase.
 Invertin.
 Lactase.
 Lipase.
 Maltase.
 Nuclease.
 Oxydases.
 Papain.
 Pepsin.
 Peroxydase.
 Reductases.
 Rennet ferment.
 Rennin.
 Steapsin.
 Thrombin.
 Trypsin.
 Tyrosinase.
 Zymase.

Ephedrine, conversion of, into ψ -ephedrine (SCHMIDT), A., i, 602; (SCHMIDT and EMDE), A., i, 978.

Ephedrine and ψ -Ephedrine in relation to the cinnamylamine bases (SCHMIDT and EMDE), A., i, 945.

Epichlorohydrin, condensation of, with phthalic anhydride in presence of tertiary bases (WEINSCHENK), A., i, 90.

Epidote from near Chiavriè, Condove, in the Valley of Susa (ZAMBONINI), A., ii, 774.

Epinephrine. See Adrenaline.

Epithelium, ciliated, action of salt solutions on (LILLIE), A., ii, 869.

Equation, van der Waals', applicability of, to the solid state (BENEDICKS), A., ii, 10.

Equation of fluids, numerical studies on the, and determination of the constants a and b (FRIDERICH), A., ii, 427.

Equation of state, deduction of several common formulae from a general (VAN ITERSON), A., ii, 11.

EQUILIBRIUM :—

Phase rule, methods of deducing the (BYK), A., ii, 339.

significance of the discontinuity of dP/dT in the application of the (SCHILLER), A., ii, 218.

is the, valid in the case of colloids? (GALEOTTI), A., ii, 273.

Equilibrium of physico-chemical systems, static character of the (GORBOFF), A., ii, 339.

of univariant and of bivariant systems, displacement of the (SAUREL), A., ii, 339.

equation of an ideal eutectic curve in a ternary system and the use of this equation in calculating the transition temperature of two isomerides in presence of solution (VAN LAAR), A., ii, 270.
 the system diphenylamine and carbon dioxide (BÜCHNER), A., ii, 731.

Phases, crystallised, miscibility of (JAEGER), A., ii, 657.
 solid, identification of (HAWLEY), A., ii, 854.

Three-phase lines in chloral alcoholate and aniline hydrochloride (ROOZEBOOM and LEOPOLD), A., ii, 654.

Equilibrium, chemical. See under Affinity, chemical.

Equisetum spermatozoids, chemotaxis of (LIDFORSS), A., ii, 44.

Erbium salts, absorption spectra of solutions of (LANGLET), A., ii, 713.

Erepsin (COHNHEIM), A., ii, 294.

Ergosterol (OTTOLENGHI), A., ii, 202.
Ergot, constituents of (KRAFFT), A., i, 979.

clavine a new constituent of (VAHLEN), A., i, 876.

physiological action of (DALE), A., ii, 474.

action of, on the alimentary canal (MELTZER and AUER), A., ii, 878.

Ergotinine (KRAFFT; TANRET), A., i, 979.

Eriodictyol (POWER and TUTIN), A., ii, 885.

Eriodictyon, examination of (POWER and TUTIN), A., ii, 885.

- Eriobotrya japonica**, nature of the cyano-genetic glucoside in the seeds of (HÉRISSEY), A., ii, 882.
- Erucic acid**, action of hydrogen bromide on an acetic acid solution of (PONZIO), A., i, 66.
- Erythrodextrin**, chloro-, nonadeca-acetyl derivative of (SKRAUP, GEINSPERGER, v., KNAFFL-LENZ, MENTER, and SIRK), A., i, 67.
- Erythroxyanthraquinone methyl ether** (GRAEBE and BERNHARD), A., i, 865. naphthal ethers. See 1-Naphthoxy-anthraquinones.
- Ester anhydrides** of dibasic acids (MOL), A., i, 4.
- Esterification** (GOLDSCHMIDT and SUNDE), A., ii, 219; (WEGSCHEIDER and KAILAN), A., ii, 340.
- Esters**, formation and decomposition of, by pancreatic enzymes (POTTEVIN), A., i, 917. critical temperature and value of $\frac{ML}{\Theta}$ of some (BROWN), T., 313; P., 39. hydrolysis of (MEYER), A., i, 358. influence of chemical constitution on the lipolytic hydrolysis of (KASTLE), A., i, 548. reactions of double decomposition between alcohols and (BRUNI and CONTARDI), A., i, 621. of organic acids, behaviour of, when heated with orthophosphoric acid (RAIKOW and TISCHKOW), A., i, 83. of fatty acids, action of sodium on (BOUVEAULT and LOCQUIN), A., i, 782. acetylenic, condensation of, with amines (MOUREU and LAZENNEC), A., i, 956.
- Ethane**, *s-tetra-* and *hexa-chloro-* preparation of (MICHEL), A., i, 550. nitro-, formation of (RÁY and NÉOGI), T., 1901; P., 259.
- Ethanedicarboxylic acid**. See Succinic acid.
- Ether**. See Ethyl ether.
- Etherates** of magnesium bromide and iodide (MENSCHUTKIN), A., i, 131, 132, 552.
- Ethers**, aromatic, preparation of (METTLER), A., i, 497. mixed fatty, course of the decomposition of, by hydrogen iodide (MICHAEL and WILSON), A., i, 620. See also Aminoacetals.
- Ethoxyacetaldehydesemicarbazone** (LEUCHS and GEIGER), A., i, 807.
- α-Ethoxyacrylic acid**, β -hydroxy-, ethyl ester (JOHNSON and McCOLLUM), A., i, 704.
- β-Ethoxyacrylic acid** and its ethyl ester (TSCHITSCHIBABIN), A., i, 398.
- β-Ethoxy- α -alanine** and its copper salt (LEUCHS and GEIGER), A., i, 806.
- β-Ethoxy- β -alkylacrylonitriles**, synthesis of (MOUREU and LAZENNEC), A., i, 241.
- 2'-Ethoxybenzophenone**, 5:5'-dibromo-2-hydroxy-, and its acetyl derivative, phenylhydrazone, and oxime (DIELS and ROSENmund), A., i, 673.
- 1-Ethoxybenzylamine**, 4-amino-, and its acyl derivatives (EINHORN and MAUERMAYER), A., i, 251.
- Ethoxybromomethylthiazoline** (GABRIEL and COLMAN), A., i, 889.
- 4-Ethoxy-1-*isobutylphthalazine*** (WÖBLING), A., i, 48.
- Ethoxycrotonic acid** (FEIST), A., i, 332.
- 5-Ethoxycytosine** and **5-Ethoxyisocytosine** (JOHNSON and McCOLLUM), A., i, 705.
- Ethoxy-10-diazophenanthrene sulphates**, 2- and 3-, sodium derivatives of (HENSTOCK), T., 1529; P., 236.
- 5-Ethoxy-1:1-dimethylcyclohexane**, 3-hydroxy- (CROSSLEY and RENOUF), P., 302.
- 5-Ethoxy-2-ethylthiopyrimidine**, 6-amino derivatives, and their hydrochlorides (JOHNSON and McCOLLUM), A., i, 770. 6-amino- and 6-chloro- (JOHNSON and McCOLLUM), A., i, 704. 6-thio-, 6-thiocyanato-, 6-thiocarbamido-derivatives, 6-thiocarbimido-, and 6-thiocarbamate derivatives (JOHNSON and McCOLLUM), A., i, 768, 769, 770.
- 5-Ethoxy-2-ethylthiopyrimidine-6-iminothiocarbonic acid**, ethyl ester (JOHNSON and McCOLLUM), A., i, 769.
- α-Ethoxyhexane**, ζ -bromo- and ζ -iodo- (DIONNEAU), A., i, 134.
- Ethoxyketo**. See Ketoethoxy.
- β-Ethoxylaminob-phenylpropionic acid** (POSNER), A., i, 955.
- Ethoxyl groups**, replacement of, by alkyl radicles (REFORMATSKY), A., i, 136; (TSCHITSCHIBABIN), A., i, 397.
- β-Ethoxy- α -methylacrylic acid** and its salts, ethyl ester, and compound with bromine (TSCHITSCHIBABIN), A., i, 398; (EMMERLING and KRISTELLER), A., i, 623, 929.
- 4-Ethoxy- α -naphthol** (BADISCHE ANILIN- & SODA-FABRIK), A., i, 951.
- Ethoxyisonitrosodicyclopentadiene** (RULE), T., 1341; P., 235,

- 3-Ethoxyphenanthraquinonemono-**oxime (HENSTOCK), T., 1530; P., 236.
Ethoxyphenolsulphonic acid (SCHULTZ), A., i, 837.
p-Ethoxyphenylcamphorylimide (*cam-*
phenal) as an antipyretic (HOUGHTON), A., ii, 188, 379.
1-p-Ethoxybenzyl-2:5-dimethylpyrrole-
3:4-dicarboxylic acid, ethylester and
p-ethoxyanil of (ROSSI), A., i, 982.
2-Ethoxy-3-phenylisooxazolidone (POS-
NER), A., i, 956.
1-p-Ethoxyphenylpyridinium bromide,
3-hydroxy- (KÖNIG), A., i, 109.
8-Ethoxy-a-phenylureidopropionic acid
(LEUCHS and GEIGER), A., i, 807.
4-Ethoxypyridine (PERATONER and
AZZARELLO), A., i, 381.
1-Ethoxyquinoline and its ψ -ethyl ether
(MEYER), A., i, 605.
p-Ethoxyselenophenol (TABOURY), A., i,
835.
2-Ethoxytolyl-carbamide, -4-thiocarb-
amide, -4-carbamic acid, ethyl ester,
-4-hydrazine, and -4-d-glucosazone
(SPIEGEL, MUNBLIT, and KAUFMANN),
A., i, 838.
a-o-Ethoxytriphenylfulgenic acid and its
fulgide (STOBBE and NETTEL), A., i,
279.
4-Ethoxyxyllyenediamine, 1-nitro-, and
its acyl derivatives (EINHORN and
MAUERMAYER), A., i, 250.
Ethyl alcohol in normal blood and
tissues (FORD), A., ii, 867.
 preparation of pure, and its specific
gravity (KLASON and NORLIN), A.,
i, 921.
 preparation of aldehyde-free, for use
in oil and fat analysis (DUNLAP),
A., i, 393.
 influence of the oxidation of, on the
maturing of brandy and wine
(TRILLAT), A., i, 476.
 action of, on frog's heart (DOLD), A.,
ii, 558.
 influence of, on the activity of the
pancreatic enzymes (GIZELT), A.,
ii, 373.
 test for (KÓSSA), A., ii, 497.
 estimation, of, in chloroform (NI-
CLOUX), A., ii, 584.
Ethyl bromide, chloride, and iodide,
and somnoform, physiological action
of (WEBSTER), A., ii, 566.
isobutyl sulphide (WUYTS), A., i,
257.
 chlorocarbonate, action of, on aromatic
glycines (A. and L. LUMIERE and
BARBIER), A., i, 245.
- Ethyl ether**, rectification of officinal
(GUIGUES), A., i, 724.
 distillation of (SWAAB), A., i, 922.
 rise of temperature when chloroform
is mixed with (ROSENTHALER), A.,
i, 330.
 compounds of, with magnesium alkyl
iodides (TSCHELINZEFF), A., i, 241.
Ethyl ether, $\alpha\beta\beta$ -trichloro- (ODDO and
MAMELI), A., i, 134, 619.
dinitro, potassium and bromo-, deriv-
atives of (MEISENHEIMER and
SCHWARZ), A., i, 618.
Ethyl ether anaesthesia, acetonuria fol-
lowing (BALDWIN), A., ii, 108.
Ethyl nitrate, hydrolysis of (KLASON
and CARLSON), A., i, 787.
 nitrite, formation of (RÄY and NEOGI),
T., 1901; P., 259.
 pentathiotricarbonate (WILLCOX), A.,
i, 726.
 propenyl ether (TSCHITSCHIBABIN),
A., i, 398.
Ethyl-a-acetonaphthalide and its di-
nitro-derivative and nitrosoamine
(MELDOLA), T., 1434.
2-Ethylaminobenzophenone, 3:5-dinitro-
(ULLMANN and BROIDO), A., i, 188.
4-Ethylamino-2:6-dioxyprymidine and
its amino- and nitroso-derivatives (MERCK), A.,
i, 537.
8-Ethylaminopropaldehyde and its di-
ethylacetal (WOHL and LOSANITSCH),
A., i, 107.
Ethylaniline, bromo-derivatives, and
their perbromides (FRIES), A., i, 647.
 hydroxy-, preparation of, and its
o-carboxylic acid (BADISCHE ANI-
LIN- & SODA-FABRIK), A., i, 736.
5-Ethylbarbituric acid (MERCK), A.,
i, 537.
 acidic constants of (WOOD), T., 1835.
p-Ethylbenzoylcarbinol and its acetate
and chloride and their semicarbazones
(AUWERS), A., i, 962.
Ethylisobutyl. See *isoHexane*.
Ethyl isobutyl ketone, β -chloro- (BLAISE
and MAIRE), A., i, 142.
 α -Ethylbutyric acid, α -amino-, copper
salt, and its nitrile and its hydro-
chloride (v. GULEWITSCH and WAS-
MUS), A., i, 410.
 α -Ethylbutyronitrile, α -hydroxy- (UL-
TÉE), A., i, 6.
2-Ethylcarveol. See 2-Ethyl- $\Delta^{6,8(9)}$ -
menthadiene-2-ol.
3-Ethylcinchonic acid and 2-hydroxy-
and their salts, esters, chlorides, and
amides (MULERT), A., i, 534.
Ethylecuparine and its hydrochloride
and platinichloride (BECKURTS and
FRERICHS), A., i, 35.

- 2-Ethyl-p-cymene** (KLAGES and SOMMER), A., i, 567.
- 5-Ethylycytosine** and its additive salts (JOHNSON and MENGE), A., i, 986.
- Ethyl β -diethylaminoethyl and β -piperidinoethyl ketones** (BLAISE and MAIRE), A., i, 142.
- Ethyldihydropuranone**, 3:4-dibromo- and -dichloro- (SIMONIS, MARBEN, and MERMOD), A., i, 32.
- Ethylene**, reaction of, with bromine at low temperatures (PLOTNIKOFF), A., ii, 12.
- tetrachloro-**, pyrogenic behaviour of (JOIST and LÖB), A., i, 130.
- Ethylene dibromide**, action of, on *p*-nitrosodialkylanilines (TORREY), A., i, 79.
- Ethylene cyanide**. See Succinonitrile.
- Ethylene glycol**, solubility of various inorganic salts in (OECHSNER DE CONINCK), A., i, 2.
- method of distinguishing, from glycerol (OECHSNER DE CONINCK), A., i, 2.
- Ethylene oxides**, aromatic (FOURNEAU and TIFFEANEAU), A., i, 20.
- Ethyleneaniline**, interaction of, with thiocarbimides (DAVIS), T., 713; P., 114.
- Ethylenediamine** chromate and chromium tetroxide (HOFMANN), A., i, 805.
- Ethylenediamine compounds** with chromium oxalate salts (PFEIFFER and TRIESCHMANN), A., i, 71; (PFEIFFER, BASCI, GASSMANN, HAIMANN, and TRIESCHMANN), A., ii, 615.
- with cobaltamine salts (WERNER and GRÜN), A., i, 70.
- with cobalt and platinum (GROSSMANN and SCHÜCK), A., i, 485.
- with metallic thiocyanates (GROSSMANN and SCHÜCK), A., i, 629, 630.
- with palladium (GUTBIER and WOERNLE), A., i, 805.
- with platinum (JÖRGENSEN), A., i, 338.
- Ethylenedicarboxylic acids**. See Fumaric acid and Maleic acid.
- Ethylenetoluidines**, interaction of, with thiocarbimides (DAVIS), T., 713; P., 114.
- Ethylenetricarboxylic acid**, methyl ester (ANSCHÜTZ and DESCHAUER), A., i, 728.
- 9-Ethylfluorene alcohol** (ULLMANN and v. WURSTEMBERGER), A., i, 77.
- 1-Ethyl-6-cyclohexanone** and its semicarbazone (BOUVEAULT and CHEREAU), A., i, 513.
- Ethylhomonarcine** (TAMBACH and JAEGER), A., i, 880.
- α -Ethyl-hydantoic acid and γ -hydantoin** (GABRIEL), A., i, 636.
- 1-Ethylhydrocotarnine** and its additive salts and 5-bromo-derivative, and its oxidation (FREUND and REITZ), A., i, 600.
- 9-Ethylidenefluorene** (ULLMANN and v. WURSTEMBERGER), A., i, 77.
- α -Ethylidenehydantoin**, bromo- (GABRIEL), A., i, 636.
- i-Ethylidenelactic acid**. See Lactic acid.
- β -Ethyliminodipropaldehyde** tetraethylacetal and its platinichloride (WOHL, HERTZBERG, and LOSANITSCH), A., i, 106.
- α -Ethylitaconic acid** and anhydride (FICHTER and SCHLAEFFER), A., i, 399.
- α -Ethyl-lacturamic acid** (GABRIEL), A., i, 636.
- Ethylmeconine** (MERMOD and SIMONIS), A., i, 303.
- 2-Ethyl- $\Delta^{5,6}{}^{\text{a}}\text{-}$ menthadiene-2-ol and $\Delta^{2,5,8}{}^{\text{a}}\text{-}$ menthatriene** (KLAGES and SOMMER), A., i, 567.
- N-Ethylmeroquinanine** and its derivatives (KOENIGS, BERNHART, and IBELE), A., i, 763.
- 1-Ethynaphthalene**, 2:4-diamino-, and its 3-carboxylic acid and its ethyl ester and their additive salts (ATKINSON and THORPE), T., 1928; P., 282.
- α -N-Ethynaphthylamine**, 2:4-dinitro- (MELDOLA), T., 1435; P., 245.
- Ethynarcine** and its ethyl ester and their salts (TAMBACH and JAEGER), A., i, 879.
- γ -Ethylpentane- $\beta\delta\alpha'$ -tricarboxylic acid**, esters and salts (SOKOLOWSKY), A., i, 138.
- 9-Ethylphenanthrene** and its picrate (PSCHORR), A., i, 820.
- Ethylphenanthrenes**, α - and β - (PSCHORR and KARO), A., i, 879.
- p-Ethylphenylacetaldehyde** and its semicarbazone (AUWERS), A., i, 963.
- Ethylpiperidine**, α -hydroxy-, alkamine esters of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 846, 847.
- 1-Ethylpiperidine-3-aldehyde** and its platinichloride (WOHL and LOSANITSCH), A., i, 107.
- diethylacetal and 4-chloro- (WOHL, HERTZBERG, and LOSANITSCH), A., i, 106.

- Ethylpivalic acid** ($\alpha\alpha$ -dimethylvaleric acid), $\beta\gamma$ -dibromo, action of alkali carbonates on (COURTOT), A., i, 789.
 hydroxy-, and its ethyl ester, salts, phenylcarbamate and acetyl derivative (COURTOT), A., i, 396.
- β -Ethyl- α -propylacrylic acid** and its salts (CRICHTON), T., 930; P., 162.
- Ethylpropylaniline**, 2:4-dinitro-, and **Ethylisopropylaniline**, 2:4:6-trinitro-, synthesis of (MULDER), A., i, 491.
- Ethyl propyl ketone**, β -chloro- (BLAISE and MAIRE), A., i, 142.
- 5-Ethylpyrimidine**, 2:4:6-triimino- (MERCK), A., i, 537.
- 5-Ethylsalicylaldehyde** and its semicarbazone (AUWERS), A., i, 963.
- Ethysulphuric acid**, alkaliand alkaline-earth salts, interaction of, with alkali and alkaline-earth nitrates (RAY and NEOGI), T., 1900; P., 259.
- 1-Ethyl- Δ^3 -tetrahydropyridine-3-aldehyde** and its nitrophenylhydrazone, and their salts and oxime and its acetate (WOHL, HERTZBERG, and LOSANITSCH), A., i, 106; (WOHL and LOSANITSCH), A., i, 107.
- Ethyltheophylline** and its additive salts (SCHMIDT and SCHWABE), A., i, 449.
- $\beta\psi$ -Ethylthiocarbamido- α -ethylacrylic acid** (JOHNSON and MENGE), A., i, 986.
- Ethylthiocodide** (PSCHORR and VOGT-HERRE), A., i, 878.
- Ethylthiolacetic acid**, platinous salt (RAMBERG), A., i, 791.
- 2-Ethylthioli-5-ethylpyrimidine**, 6-amino- and 6-chloro- (JOHNSON and MENGE), A., i, 986.
- 2-Ethylthiopyrimidine**, 6-amine derivatives and their hydrochlorides (JOHNSON, JOHNS, and HEYL), A., i, 771.
 6-chloro-5-iodo- and 5-iodo-6-amino- (JOHNSON and JOHNS), A., i, 456.
- 2-Ethylthiophen**, influence of light and heat on the chlorination and bromination of (OPOLSKI), A., i, 33.
- Ethyl-*o*-toluidine**, hydroxy- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 736.
- Ethyl-*p*-toluidine**, bromo-derivatives, and their perbromides (FRIES), A., i, 647.
- Ethyltripropylammonium iodide**, action of chlorine on (WERNER), T., 1637; P., 258.
- 5-Ethyluracil**. See 2:6-Dioxy-5-ethyl-pyrimidine.
- 7-Ethyluramil** (MÖHLAU and LITTER), A., i, 611.
- Ethyl vinyl ketone** (BLAISE and MAIRE), A., i, 142.
- Etna**, radioactivity of products of (CASTORINA), A., ii, 64.
- Eucharis lobata**, coagulation of the swimming plate and contractility of (LILLIE), A., ii, 185.
- isoEugenol**, action of mercuric acetate on (BALBIANO and PAOLINI), A., i, 187.
 nitro-, and its bromo- and acetyl derivatives (PUXEDDU and COMELLA), A., i, 950.
- Eumydriine**, toxicity of (BERTOZZI), A., ii, 475.
- Europium**, cathodic phosphorescence of (URBAIN), A., ii, 138.
 diluted with lime, cathodic phosphorescence of (URBAIN), A., ii, 510.
- Eutannin** and its acetyl and methyl derivatives and hydrate (THOMS), A., i, 760.
- Exalgin**, action of Nessler's solution (RAIKOW and KÜLMOW), A., i, 112.
- Excretion** of allantoin in thymus feeding (M'LACHLAN; PATON), A., ii, 470.
 of amino-acids in gout and leucæmia (LIPSTEIN), A., ii, 109.
 of antipyrine (JONESCU), A., ii, 565.
 of creatine and creatinine in man (KLERCKER), A., ii, 295.
 of creatinine (KOCH), A., ii, 108; (CLOSSON), A., ii, 471.
 of creatinine in man (PEKELHARING, VAN HOOGENHUYZE, and VERPLOEGH), A., ii, 40; (VAN HOOGENHUYZE and VERPLOEGH), A., ii, 186.
 of inorganic compounds (MENDEL and SICHER; MENDEL and CLOSSON), A., ii, 469.
 of lactase and sugar in infants with gastric diseases (LANGSTEIN and STEINITZ), A., ii, 187.
 of nitrogen and chlorides, influence of the intake of water on the (HEILNER), A., ii, 295.
 cutaneous, of nitrogenous substances (BENEDICT), A., ii, 107.
 of endogenous purine substances in man (MACLEOD and HASKINS), A., ii, 874.
- Excretion** of endogenous purine substances and uric acid (FAUVEL), A., ii, 564.
 of uric acid, influence of chocolate and coffee on (FAUVEL), A., ii, 564.
- Expansion**, relation between the variation of electrical resistance and, of monatomic solids (BRONIEWSKI), A., ii, 646.

Expansion-coefficient and melting point of the solid elements, relation between the (WIEBKE), A., ii, 331.
Explosives, use of the nitrometer in (NEWFIELD and MARX), A., ii, 628.
Extraction of liquids, new apparatus for the (MAMELI), A., ii, 79.
Extraction apparatus (ROGERS), A., ii, 277 ; (VAN LEEUWEN), A., ii, 797. for liquids with ether (BOWMAN), P., 24.
Extraction cup, improved (WARREN), A., ii, 489.
Eye. See Iris.

F.

Fabrics, estimation of arsenic, electrolytically, in (THORPE), T., 408 ; P., 73.
Faeces, bacteria of. See Bacteria, faecal. extraction of fat from, and occurrence of lecithin in (LONG), A., ii, 637 ; (LONG and JOHNSON), A., ii, 875. phosphorus compounds in the fat of (LONG and JOHNSON), A., ii, 875. amount of sulphur-containing substances in human (v. OEFEL), A., ii, 565. estimation of cholic acid in human (v. OEFEL), A., ii, 501.
Faraday's law, validity of, for metals yielding ions of different valency (ABEGG and SHUKOFF), A., ii, 596.
Farmyard manure. See under Manure.
Fat, reagent in the chemistry of (TWITCHELL), A., i, 331. action of synthetical bile acids on the pancreatic decomposition of (MAGNUS), A., ii, 691. decomposition of, by enzymes (FOKIN), A., ii, 793. velocity of hydrolysis of, by enzymes (KANITZ), A., i, 328. action of ozone on (MOLINARI and SONCINI), A., i, 792. from faeces. See under Faeces. intramuscular and extramuscular, of the principal muscles of horses and oxen (HEFELMANN and MAUZ), A., ii, 316. Dika, from seed kernels of Irvingia (LEWKOWITSCH), A., ii, 131. in milk. See under Milk. Surin (LEWKOWITSCH), A., ii, 205. of the palm fruit of Surinam (SACK), A., ii, 386. Tangkala, from Java, examination of (SCHROEDER), A., ii, 131. analysis of (FAHRION), A., ii, 402. preparation of aldehyde-free alcohol for use in (DUNLAP), A., i, 393.

Fat, determination of the saponification number in (DAVIDSOHN and WEBER), A., ii, 908. detection of foreign colouring matters in (FENDLER), A., ii, 58. estimation of, in cocoas (TSCHAPLOWITZ), A., ii, 404 ; (KIRSCHNER), A., ii, 502. estimation of, in cream. See Cream. estimation of water in (ASCHMAN and AREND), A., ii, 814.
Fat extraction apparatus, Foerster's, modification of (PESCHECK), A., ii, 813.
Feeding with artificial nutriment (FALTA and NOEGGERATH), A., ii, 102. pituitary (THOMPSON and JOHNSTON), A., ii, 102.
Felspar as manure (PRIANISCHNIKOFF), A., ii, 47.
Felspars, isomorphism and thermal properties of the (DAY and ALLEN), A., ii, 177 ; (VAN LAAR), A., ii, 422.
Fenchone, action of sodamide on (SEMMLER), A., i, 681.
Fenethyl alcohol, constitution of (KONDARKOFF), A., i, 520.
Fermentation, the mechanism of (ARMSTRONG), A., i, 128. velocity of (HERZOG), A., ii, 698. production of methane by (OMELIANSKY), A., ii, 188. by "Acetondauerhefe," formation of fusel oil in (PRINGSHEIM), A., ii, 880. of milk (BLUMENTHAL and WOLFF), A., ii, 879. of sugar-cane products (BROWNE), A., ii, 381. acetic acid (BUCHNER and GAUNT), A., i, 920. alcoholic, chemical reactions occurring during (BUCHNER and MEISENHEIMER), A., ii, 790. by yeast, chemical dynamics of (SLATOR), T., 128. influence of peroxydase on (BACH), A., i, 470. fate of yeast catalase in cell-free (BACH), A., i, 470. lactic acid (BUCHNER and MEISENHEIMER), A., i, 919.
Fermentation process, action of colophony during the (EFFFRONT), A., ii, 42.
Fermentation vats (WENDELSTADT and BINZ), A., i, 432.
Fermenting liquids, influence of metals on (NATHAN, SCHMID, and FUCHS), A., ii, 569.
Ferments. See Enzymes.
Fern secretions (ZOPF), A., i, 871.

- Ferric and Ferrous compounds.** See under Iron.
- Ferrocyanides**, preparation of hydrogen cyanide from (FELD), A., i, 486.
- Ferrocyanide-violet**, formation of (HOFMANN and ARNOLDI), A., i, 562.
- Ferromagnesian titanates** (CROOK and JONES), A., ii, 459.
- Ferromanganese**, estimation of manganese in (KETREIBER), A., ii, 494.
- anodes in solutions of sodium hydroxide (WHITE), A., ii, 725.
- Ferrosilicon**, poisoning by hydrogen phosphide by means of (LEHNKERING), A., ii, 664.
- Ferrotungstens**, pure (VIGOUROUX), A., ii, 453.
- Fertilisers**, ammonification and nitrification of some (FRAPS), A., ii, 382.
- Fibre**, crude, estimation of cellulose, lignin, and cutin in (KÖNIG), A., ii, 905.
- Fibres**, "Denji" and "Nzonogwi," from British Central Africa, A., ii, 247.
- Fibrin-ferment**, composition of (NOLF), A., ii, 460.
- Fibrinogen**, influence of calcium salts on the heat coagulation of (MURRAY), A., ii, 291.
- Fibrinoglobulin** (HUISKAMP), A., i, 54.
- Fibroferrite** from Green River, Utah (HEADDEN), A., ii, 37.
- Fibroin**, silk, formation of a dipeptide by hydrolysis of (FISCHER and ABDERHALDEN), A., i, 326, 718.
- Filter**, new porcelain (BULLOCH and CRAW), A., ii, 662.
- Filter tubes** for collection of precipitates (PENFIELD and BRADLEY), A., ii, 488.
- Firpene**, chlorohydrochloride, hydrochloride, and hydrobromide of (FRANKFORTER and FRARY), A., i, 970.
- Fischer's salt.** See Potassium cobaltinitrite.
- Fish respiration.** See Respiration.
- Fishes**, blood serum of. See Blood serum.
- Flame**, Bunsen. See Bunsen flame.
- Flames**, structure of; lecture experiment (THIELE), A., ii, 661.
- electrical conductivity of (DAVIDSON), A., ii, 325.
- emission of carbon in certain (AMERIO), A., ii, 440.
- non-luminous, coloured by metallic salts (KURLBAUM and SCHULZE), A., ii, 726.
- Flask**, combined suction and washing, with three-way cock and tube reaching to the bottom (STEINEBACH), A., ii, 433.
- Flavellagic acid** and its acetyl and benzoyl derivatives (PERKIN), T., 252; P., 42.
- reaction of, with sulphuric acid (PERKIN), P., 114.
- Flavonol**, 6:2':4'-trihydroxy-, synthesis of, and its tetra-acetyl derivative (BONIFAZI, v. KOSTANECKI, and TAMBORI), A., i, 201.
- 7:2':4'-trihydroxy-, dyeing properties of, and its tetra-acetyl derivative (v. KOSTANECKI, LAMPE, and TRIULZI), A., i, 202.
- 5:7:2':4'-tetrahydroxy-. See Morin.
- Flavopurpurin**, ethers of (GRAEBE and THODE), A., i, 863.
- Flavopurpurinimide** (PRUD'HOMME), A., i, 194.
- Flax**, common, occurrence of phaeosinlutin in (DUNSTAN, HENRY, and AULD), A., ii, 794.
- lime factor for (NAMIKAWA), A., ii, 892.
- Flesh**, chemistry of (TROWBRIDGE and GRINDLEY), A., ii, 374.
- study of the phosphorus content of (EMMETT and GRINDLEY), A., ii, 242.
- estimation of sulphurous acid in (MENTZEL), A., ii, 305.
- Flour**, action of, on hydrogen peroxide (BREMER), A., ii, 587.
- bleaching of (FLEURENT), A., ii, 587.
- bleached, examination of (SHAW), A., ii, 712.
- estimation of organic phosphorus compounds in (ARRAGON), A., ii, 592.
- Flours**, microscopical examination of (GASTINE), A., ii, 587.
- optical determination of gliadin in (MARION), A., ii, 408.
- Flowers**, respiration of (MAIGE), A., ii, 192.
- Fluidity** and viscosity (BINGHAM), A., ii, 218.
- Fluorene** (PERKIN), T., 252; P., 42.
- condensation of, with aromatic aldehydes (THIELE and HENLE), A., i, 571.
- action of bromine on (SCHMIDT and BAUER), A., i, 28.
- Fluorene compounds** (ULLMANN and v. WURSTEMBERGER), A., i, 76.
- formation of, from phenanthrene derivatives (SCHMIDT and BAUER), A., i, 25.
- α -chlorinated, removal of chlorine from (STAUDINGER), A., i, 824.
- Fluorene-9-carboxylic acid**, 9-hydroxy-, and its bromo- and nitro-derivatives and isomeride (SCHMIDT and BAUER), A., i, 25.

- Fluorenone** and its bromo- and nitro-derivatives and their oximes, phenylhydrazone, and semicarbazones (SCHMIDT and BAUER), A., i, 26, 28. action of bromine on (SCHMIDT and BAUER), A., i, 28. action of nitric acid on (SCHMIDT and BAUER), A., i, 27.
- Fluorenone**, 2:6:7-*triamino*- and 2:6:7-trinitro-, and its oxime, phenylhydrazone, and semicarbazone (SCHMIDT and BAUER), A., i, 27.
- 3-hydroxy-, and its acyl derivatives, oxime, and 2-carboxylic acid and its salts and methyl ester (ERRERA and LA SPADA), A., i, 277.
- 2:4-dinitro- (ULLMANN and BRODIO), A., i, 188.
- Fluorenyl alcohol** and its bromo- and nitro-derivatives and their acetates (SCHMIDT and BAUER), A., i, 25.
- 2:6:7-*triamino*-, and its hydrochloride and picrate (SCHMIDT and BAUER), A., i, 28.
- Fluorescein**, formation of (MEYER and PFOTENHAUER), A., i, 23.
- constitution of (NOELTING), A., i, 23. and its derivatives, relation between the photochemical action of, and their intensity of fluorescence and sensitiveness to light (v. TAPPEINER), A., ii, 512.
- Fluorescence**, theory of (KAUFFMANN and GROMBACH), A., i, 284; (WOKER), A., ii, 511.
- and colour, relationship of, to constitution (SILBERRAD), T., 1787; P., 251.
- relation between, and chemical constitution of organic substances (FRANCESCONI and BARGELLINI), A., ii, 714.
- of dyes (FORMÁNEK), A., ii, 319.
- Fluorescent substances**, dependence of the action of, on their concentration (JODLBAUER and v. TAPPEINER), A., i, 511.
- action of, in the dark (JODLBAUER), A., ii, 462.
- action of, on toxins (JODLBAUER and v. TAPPEINER), A., ii, 462.
- Fluorides**. See under Fluorine.
- Fluorine** in the thermal springs of Aachen (SAHLBOM and HINRICHSEN), A., ii, 716, 798; (CASARES), A., ii, 896.
- occurrence of, in mineral waters of the Pyrenees and in geysers of the Yellowstone Park (CASARES), A., ii, 80.
- action of, on chlorine (LEBEAU), A., ii, 739.
- Fluorine**, some reactions and new compounds of (PRIDEAUX), T., 316; P., 19.
- Hydrofluoric acid** (*hydrogen fluoride*) (DEUSSEN), A., ii, 531.
- Fluorides**, elimination and alkalimetric estimation of silicon fluoride in the analysis of (HILEMAN), A., ii, 798.
- Hydrofluosilicic acid**, analysis of (SCHUCHT and MÖLLER), A., ii, 901.
- titration of (SAHLBOM and HINRICHSEN), A., ii, 798.
- Fluorine**, the etching tests for small amounts of (WOODMAN and TALBOT), A., ii, 895.
- detection of, in alimentary substances (VILA and PIETTRE), A., i, 915; (VILLE and DERRIEN), A., ii, 390.
- estimation of, iodometrically (HILEMAN), A., ii, 895.
- See also Halogens.
- Fluorite crystals** from Néris-les-Bains (CARLES), A., ii, 680.
- Fluoro-aromatic compounds** (HOLLMAN), A., i, 941.
- Fluorogen groups** (KAUFFMANN and GROMBACH), A., i, 283.
- Fluorspar**, coloration of (WÖHLER and KASARNOWSKI), A., ii, 22.
- violet, natural and artificial coloration of (BERTHELOT), A., ii, 863.
- Fly agaric** (ZELLNER), A., ii, 572.
- Fog**, diminution of the mobility of ions in (ELSTER and GEITEL), A., ii, 652.
- Fog formation**, phenomena of, in supersaturated mixtures of ethyl alcohol and air (BARUS), A., ii, 651.
- Food**, enzymes in, and their rôle in digestion (SCHEUNERT and GRIMMER), A., ii, 462.
- nutritive value of the non-protein nitrogen compounds in (SCHULZE), A., ii, 248.
- human, fresh-water algae as (NAMIKAWA), A., ii, 884.
- preserved. See Preserved food.
- vegetable, decomposition of, by micro-organisms in absence of air (KÖNIG, SPIECKERMANN, and KUTTENKEULER), A., ii, 298.
- detection and estimation of boric acid in (LOW), A., ii, 629.
- detection of salicylic acid in (GORNI), A., ii, 313.
- method of estimating the pepsin-soluble nitrogen of (STUTZER, WANGNICK, and ROTHE), A., ii, 820.
- estimation of digestible proteinoids in (STUTZER), A., ii, 820.

- Food**, estimation of sodium sulphite in (HOLLEY), A., ii, 800.
 estimation of sulphurous acid in (SCHUMACHER and FEDER), A., ii, 124.
- Food-values**, new method of indicating (FISHER), A., ii, 374.
- Formaldehyde**, presence of, in certain food-stuffs (PERRIER), A., ii, 906.
 formation of, during the destruction of sugar by heating (TRILLAT), A., i, 234, 235, 401.
 decomposition of, by the silent discharge (RUSS), A., i, 627.
 dissociation constant of (H. and A. v. EULER), A., i, 140.
 condensation of (H. and A. v. EULER), A., i, 142, 143; (LOEW), A., i, 401.
 action of, on α -picoline (LIPP and ZIRNGIBL), A., i, 381.
 action of, on potassium permanganate (FRANKFORTER and WEST), A., i, 929.
 formation of a sugar from (H. and A. v. EULER), A., i, 142, 143; (LOEW), A., i, 401.
 physiological action of (JACOBSEN), A., ii, 473.
 influence of, on the energy of increase, the fermentation energy, and the duration of generation of different varieties of yeast (HIRSCH), A., ii, 42.
 importance of, in protecting plants (KÖCK), A., ii, 887.
 detection of (GOLDSCHMIDT), A., ii, 132; (METH), A., ii, 588.
 sensitive colour reaction for (VOISENET), A., ii, 59.
 colour reaction of, with proteids (ROSENHEIM), A., ii, 508.
 detection of, in milk (EICHHOLZ), A., ii, 59; (ACREE), A., ii, 906.
 use of Schiff's reagent for the detection of, in milk (UTZ), A., ii, 206.
 detection, estimation, and rate of disappearance of, in milk (WILLIAMS and SHERMAN), A., ii, 206.
 detection of, in witch hazel (PUCKNER), A., ii, 59.
 detection of, in wines (SCHUCH), A., ii, 500.
 estimation of (RUSS and LARSEN), A., ii, 816.
 estimation of, volumetrically (GROSSMANN and AUFRICHT), A., ii, 634.
- Formaldehyde**, estimation of the yield of, in various methods of liberating the gas for the disinfection of rooms (BASE), A., ii, 709.
 estimation of methyl alcohol in commercial (BLANK and FINKENBEINER), A., ii, 399.
- Formaldehyde pastilles**, testing (RÜST), A., ii, 312.
- Formaldehydesulphoxylic acid**, salts, preparation of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 480.
 zinc salt (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 802.
- Formamidyleamphoformeneaminecarboxylic acid** (TINGLE and ROBINSON), A., i, 903.
- Formazyl**, nitro-, interaction of, with carbon disulphide and potassium hydroxide (ORMEROD), P., 206.
- Formhydroxamic acid**, conversion of, into fulminic acid (BIDDLE), A., i, 6.
 derivatives of (BIDDLE), A., i, 340.
- Formic acid**, mechanism of the oxidation of (SKRABAL and PREISS), A., ii, 658.
 hydrates of (COLLES), T., 1250; P., 207.
 poisonous action of, on different micro-organisms (HENNEBERG), A., ii, 479.
 estimation of (RUPP), A., ii, 907.
 estimation of, volumetrically (GROSSMANN and AUFRICHT), A., ii, 634; (KLEIN), A., ii, 812.
- Formic acid**, salts, injurious action of, on plants (Asō), A., ii, 887.
 preparation of oxalates from (KOEPP & Co.), A., i, 4.
 cuprous salt, preparation and properties of (ANGEL), T., 345; P., 58.
- Formic acid**, allyl ester, action of ammonia and amines on (VAN ROMBURGH), A., i, 2.
- Formulae**, deduction of several common, from a general equation of state (VAN ITERSON), A., ii, 11.
- Formylbutyric acid**, ethyl ester, sodium derivative (JOHNSON and MENGE), A., i, 986.
- Formylglycine** (FISCHER and WARBURG), A., i, 72.
- Formylglycolic acid**, ethyl ester (JOHNSON and MCCOLLUM), A., i, 769.
- Formyl-leucines**, preparation of (FISCHER), A., i, 811.
- Formyl-leucines and -leucyl chloride** (FISCHER and WARBURG), A., i, 72.
- Formylphenylacetic acid**, ethyl ester, constitution of (MICHAEL), A., i, 179.

- Forsterite**, preparation of (ALLEN, WRIGHT, and CLEMENT), A., ii, 866.
- Freezing point** of a mineral water of the acid carbonate class, direct proportionality between the, and the composition of the water expressed in terms of the anhydrous salts and normal carbonates (GRAUX), A., ii, 148.
- Freezing point depression**, modification of van't Hoff's theory of the (GOEBEL), A., ii, 332.
- connection between, and latent heat of fusion (DRUCKER), A., ii, 71.
- Friction coefficients** of gaseous mixtures (THIESEN), A., ii, 728.
- Frog's heart**. See Heart.
- kidney. See Kidney.
- nervous system. See Nervous system.
- d-Fructose**. See Lævulose.
- Fruit juices**, analyses of (LÜHRIG, BEYTHIEN, WATERS, JUCKENACK, MORSCHÖCK, and DOMINIKIEWICZ), A., ii, 193.
- fermented and unfermented, estimation of malic acid and some fixed acids in (MESTREZAT), A., ii, 635.
- products, approximate estimation of commercial glucose in (LYON), A., ii, 809.
- Fruits** of certain plants, possibility of accumulating arsenic in (GOSIO), A., ii, 624.
- Styrian, composition of (HOTTER), A., ii, 796.
- Fucoxanthophyll** (TSVETT), A., i, 873.
- Fuels**, apparatus for estimating the calorific value of (SCHREFELD), A., ii, 180.
- trustworthiness of the calculation of heating values of, from analyses (MOHR), A., ii, 334.
- natural solid, estimation of moisture in (MANZELLA), A., ii, 489.
- See also Coal.
- Fulgenic acids**, anomalies in the synthesis of (STOBBE and BADENHAUSEN), A., i, 279.
- Fulgides**, colour of, and of other unsaturated compounds (STOBBE), A., i, 960.
- Fulminic acid**, formation of, from form-hydroxamic acid (BIDDLE), A., i, 6. constitution of (JOVITSCHITSCH), A., i, 732.
- possible existence of esters of (BIDDLE), A., i, 340.
- Fulvene derivatives** (THIELE and BÜHNER), A., i, 569; (THIELE and HENLE), A., i, 571; (THIELE and RÜDIGER), A., i, 586; (THIELE, BALHORN, and ALBRECHT), A., i, 639.
- Fumarylaldehyde**, bromo-, and its tetra-acetal derivative (HARRIES and KRÜTZFELD), A., i, 930.
- Fumaric acid**, bromo-, reactions of (LOSSEN and MENDTHAL), A., i, 798.
- Fumarylglycidic acid** and its salts, esters, acid chloride, and amide (LOSSÉN, DUECK, LEOPOLD, NIETHRENHEIM, and SCHÖRK), A., i, 797.
- Fungi**, wood-destroying, nutrition of (MALENKOVIĆ), A., ii, 477.
- detection and estimation of trehalose in, by means of trehalase (HARANG), A., ii, 311.
- Fungus** which decomposes paraffin (RAHN), A., ii, 479.
- Funnel**, delivery, for introducing liquids under increased or diminished pressure (BRYAN), A., ii, 154.
- suction, with stretched filter (LENZ), A., ii, 432.
- Furan group**, Grignard syntheses in the (HALE, McNALLY, and PATER), A., i, 199.
- Furans**, researches on (JOHNSON and JOHNS), A., i, 874.
- Furfuralazine picrate** (CIUSA), A., i, 962.
- Furfuraldehyde** (*furfurol*), electrolytic reduction of (LAW), T., 1517, 1526; P., 237.
- arylamine derivatives, and their conversion into pyridine compounds (ZINCKE and MÜHLHAUSEN), A., i, 33; (KÖNIG; DIECKMANN, BECK, and SZELINSKI), A., i, 109.
- compounds of, with hydroferrocyanic and hydroferricyanic acids (WAGENER and TOLLENS), A., i, 149.
- Furfuraldoxime** peroxide (PONZIO and BUSTI), A., i, 855.
- Furfurol**. See Furfuraldehyde.
- Furfurylfluorene** (THIELE and HENLE), A., i, 572.
- Furfurylidenefluorene** (THIELE and HENLE), A., i, 572.
- Furfurylidenerhodanic acid** (BARGELINI), A., i, 384.
- α-Furfurylideneacetic acid**. See α-Furyl-β-dimethylfulgenic acid.
- Furnaces**, electric. See under Electrochemistry.
- Furoin**, electrolytic oxidation of (LAW), T., 1445; P., 197.
- Furylacetone** and its oxime and semi-carbazone (DARZENS), A., i, 137.
- γ-Furyl- $\alpha\beta$ -amylene** (β -2-furyl- α -methyl- β -ethylethylene) (HALE, McNALLY, and PATER), A., i, 199.
- 2-Furyldiethylcarbinol** (HALE, McNALLY, and PATER), A., i, 199.

a-Furyl- $\delta\delta$ -dimethyl-fulgenic acid and -fulgide (STOBBE and ECKERT), A., i, 101.

Furylene-2,5-bis-dibenzylcarbinol and -diphenylcarbinol and its ethers (HALE, McNALLY, and PATER), A., i, 199.

β -Furyl- α -methylglycidic acid, ethyl ester (DARZENS), A., i, 137.

Fused compounds, dissociation of (KREMMANN), A., ii, 332.

Fusel oil, formation of, in fermentation by "Acetondauerhefe" (PRINGSHEIM), A., ii, 880.

G.

Gadio acid, dihydroxy-, and **Gadoleic acid** from cod liver oil (BULL), A., i, 925.

Gadolinium, ultra-violet phosphorescence of (URBAIN), A., ii, 28 ; (CROOKES), A., ii, 360.

oxide, spectra of, mixed with europia and lime (URBAIN), A., ii, 510.

d-Galactonic acid, synthetical experiments with (PAAL and WEIDENKAFF), A., i, 802.

Galena formed during the eruption of Vesuvius, April, 1906 (ZAMBONINI), A., ii, 766.

Galipidine and its salts and alkyl haloids (BECKURTS and FRERICHS), A., i, 35.

Gallacetstein, Nencki and Sieber's, synthesis of (BÜLOW and SCHMID), A., i, 300.

Gallacetophenone, condensation products of (RUPE and VEIT), A., i, 435.

dimethyl ether and its hydrazone (PERKIN and WEIZMANN), T., 1654.

Gallein salts and hydrate (HELLER and LANGKOPF), A., i, 671.

Gallic acid, oxidation of (PERKIN), T., 251 ; P., 41.

condensation of, with carbamide and formaldehyde or with formaldehyde and urethanes (VOSWINKEL), A., i, 961.

absorption of, by organic colloids (DREAPER and WILSON), A., i, 777.

trimethyl ether and its chloride (PERKIN and WEIZMANN), T., 1655.

Gallocyanin, action of formaldehyde on (FARBWERKE VORM. L. DURAND, HUGUENIN & Co.), A., i, 873.

Gallocyanin dyes, condensation of, with aminosulphonic acids (GRANDMOUGIN), A., i, 596.

Gallotannic acid, estimation of, in tanning materials (MANEA), A., ii, 504.

XC. ii.

Gas, new, spectrum of a, in the atmosphere (SCHMIDT), A., ii, 821.

Gas analysis, improvements in (NOWICKI), A., ii, 395.

report on graduated vessels at the Sixth International Congress for applied chemistry at Rome, 1906, A., ii, 576.

application of sodium hyposulphite in (FRANZEN), A., ii, 577.

apparatus (HALDANE), A., ii, 121.

Gases present in rock-salt and in the mud volcanoes of Roumania (COSTACHESCU), A., ii, 618.

of thermal springs (MOUREU), A., ii, 442 ; (MOUREU and BIQUARD), A., ii, 685.

pure, preparation of (MOISSAN), A., ii, 531.

pump for the extraction and transport of (ANDERLINI), A., ii, 605.

new apparatus for storing (ACREE), A., ii, 304.

ionisation of various, by the α -particles of radium (BRAGG), A., ii, 322.

spontaneous ionisation of (GEITEL), A., ii, 329, 518.

connexion between the critical temperatures of vapours and, and their absorption coefficients, and the viscosity of the solvent medium (TATE), A., ii, 838.

specific heat of (LUSSANA), A., ii, 70.

expansion of, at high temperatures (JAQUEROD and PERROT), A., ii, 34.

determination of the coefficient of internal friction of, by a new method (ZEMPLÉN), A., ii, 272.

diffusion of (KASSNER), A., ii, 273.

absorption of, by charcoal (VAUBEL), A., ii, 738.

regularity in the absorption of, in liquids (WINKLER), A., ii, 342.

simplified measurement and reduction of (REBENSTORFF), A., ii, 487.

simple arrangement for passing, into reacting masses which are stirred by a turbine (BUNKHEISER and CHRISTIE), A., ii, 347.

liquefied, molecular aggregation of (HUNTER), A., ii, 524.

rare, estimation of, in natural gaseous mixtures (MOUREU), A., ii, 126.

waste, estimation of acids in (HENZ), A., ii, 122.

analysis of, rich in one or more constituents (STOCK and NIELSEN), A., ii, 894.

Gaseous-liquid state, the (SCHÜKAREFF ; SCHÜKAREFF and TSCHUPROWA), A., ii, 271.

- Gaseous mixtures**, friction of (THIESEN), A., ii, 728.
 some difficulties in the estimation of carbon monoxide in (GAUTIER and CLAUSMANN), A., ii, 251.
 natural, estimation of rare gases in (MOUREU), A., ii, 126.
- Gaseous molecules**, the mean path traversed by, and its relation to the theory of diffusion (SMOLUCHOWSKI), A., ii, 652.
- Gaseous substances**, absorption and emission lines of (LORENTZ), A., ii, 209.
- Gas generator**, new (SCHMIDT & CIE.), A., ii, 433.
 for hydrogen sulphide, hydrogen, and other gases (FORD), A., ii, 531 ; (BROWNE and MEHLING), A., ii, 609.
- Gas light**, incandescent, influence of, on certain pharmaceutical preparations (SCHOORL and VAN DEN BERG), A., ii, 411.
- Gastric juice**, human, behaviour of, under normal and pathological conditions (BLUM and FULD), A., ii, 207.
 free hydrochloric acid in the (DRESER), A., ii, 777.
- Gastric secretion** (EDKINS), A., ii, 238.
- Gastrotoxic serum** (BOLTON), A., ii, 688.
- Geikielite** from Ceylon (CROOK and JONES), A., ii, 459.
- Gelatin**, liquefaction of, by *Bacillus cloacae* (MACCONKEY), A., ii, 113.
 hydrolysis of (SKRAUP and HECKEL), A., i, 124.
 decomposition of (LEVENE and WALKACE), A., i, 469 ; (LEVENE and BEATTY), A., i, 718.
 swelling of, in salt solutions (OSTWALD), A., i, 469.
 the rendering insoluble of, during photographic development (A. and L. LUMIÈRE and SEYEWETZ), A., i, 614, 915.
 action of alums and aluminium salts on (A. and L. LUMIÈRE and SEYEWETZ), A., i, 916.
 action of radium and other salts on (RUDGE), A., ii, 412.
 diffusion in (MEYER), A., ii, 105.
 "dichromated," which has spontaneously become insoluble in the dark, composition of (A. and L. LUMIÈRE and SEYEWETZ), A., i, 325.
- Gelatins**, preparation of (SADIKOFF), A., i, 777.
 animal. See Animal gelatins.
- Gelatin dynamites**, analysis of (STILLMAN and AUSTIN), A., ii, 585.
- Gelatin jelly**, constitution of (BECHHOLD and ZIEGLER), A., ii, 738.
- Gelatinous matters**, estimation of, by means of acetone (BORDAS and TOUPLET), A., ii, 639.
- Genital products**, toxicity of (LOISEL), A., ii, 112.
- Geraniol** and its tetrabromide (V. SODEN and TREFR), A., i, 295.
 constitution of (ZEITSCHEL), A., i, 521.
- Germination**, influence of the absorption of sugars on (LUBIMENKO), A., ii, 624.
 influence of light on the absorption of sugars on (LUBIMENKO), A., ii, 882.
 effect of impregnating seeds with nutritive salts on (KAMBERSKY), A., ii, 481.
- action of aluminium salts on (MICHEELS and DE HEEN ; HOUSE and GIES), A., ii, 191.
- effect of calcium cyanamide on the energy of (BARTSCH), A., ii, 481.
- influence of electrodes on (MICHEELS and DE HEEN), A., ii, 115.
- action of manganese and of ozone on (MICHEELS and DE HEEN), A., ii, 791.
- action of colloidal solutions of tin on (MICHEELS and DE HEEN), A., ii, 115.
- development of amylase during (EFFRONTE), A., ii, 116.
- Ghedda-wax**. See Wax.
- Gland**, mammary, compounds of nucleic acid from the, with proteids in relation to caseinogen formation (LÖBISCH), A., i, 719.
 of the cow, nucleic acid from the (MANDEL and LEVENE), A., i, 125.
- parotid, the secretory function of the, in man (ZEBROWSKI), A., ii, 103.
- prostrate, new pathogenic bacillus isolated from an enlarged (DUNGEON), A., ii, 693.
- submaxillary, oxygen tension in (BAROROFT), A., ii, 178.
- suprarenal. See Suprarenal.
- thymus, nucleic acids of the (STEUDEL), A., i, 125.
- Glass**, fluorescence of, caused by radiotellurium (GREINACHER), A., ii, 410.
- didymium. See Didymium glass.
- Glauberite**, formation of, at 83° (VAN'T HOFF, FARUP, and D'ANS), A., ii, 236.
- Glauconite**, composition of (COLLET and LEE), A., ii, 370.

- Glaucophanic acid**, methyl and ethyl ethers and their reactions (LIEBERMANN), A., i, 556.
- Gliadin** and its preparations (BERGELL and DÖRPINGHAUS), A., i, 52.
- optical rotation of, in certain organic solvents (MATHEWSON), A., i, 999.
- optical rotation and density of solutions of (MATHEWSON), A., i, 545, 999.
- monoamino-acids of (ABDERHALDEN and MALENGREAU), A., i, 914.
- optical determination of, in flours (MARION), A., ii, 408.
- Globulin**, artificial change of albumin into (MOLL), A., i, 53.
- solubility of, in magnesium sulphate, influence of temperature on (GALEOTTI), A., i, 912.
- Globulins** (MELLANBY), A., i, 122.
- polymerisation of (TAYLOR), A., i, 467.
- as colloidal solutions (HARDY), A., i, 121.
- Glow discharge**. See under Electrochemistry.
- Glucinum (beryllium)** hydroxide, transformation of, into a form sparingly soluble or insoluble in alkalis or acids (VAN OORDT), A., ii, 447.
- sulphate, hydrates of (LEVI-MALVANO), A., ii, 165.
- Glucinum**, estimation of (GLASSMANN), A., ii, 902.
- separation of, from aluminium (GLASSMANN), A., ii, 902.
- d*-**Gluconic acid**, syntheses with (PAAL and HÖRNSTEIN), A., i, 400, 802.
- Glucoproteins**, true nature of, obtained by Schützenberger in the decomposition of protein matter (HUGOUNENQ and MOREL), A., i, 719.
- α*-**Glucoproteins**, Lepierre's, the true nature of (GALIMARD, LACOMBE, and MOREL), A., i, 776.
- Glucosaminecarboxylic acid**, ethyl ester, and its behaviour in the system of a dog suffering from pancreas-diabetes (FORSCHBACH), A., ii, 788.
- β*-**Glucosan** (VONGERICHTEN and MÜLLER), A., i, 198.
- d*-**Glucose**. See Dextrose.
- Glucose**, commercial, approximate estimation of, in fruit products (LYON), A., ii, 809.
- d*-**Glucosephloroglucinol** and its disazo-compounds (VONGERICHTEN and MÜLLER), A., i, 198.
- Glucoside**, cyanogenetic, in the seeds of *Eriobotrya japonica*, nature of the (HÉRISSEY) A., ii, 882.
- from *Prunus Laurocerasus* (HÉRISSEY), A., i, 31.
- Glucosides**, changes of refractive properties of, produced by acids, bacteria, and ferments (OBERMAYER and PICK), A., ii, 100.
- hydrolytic activity of liver histozymes and enzymes on some (GONNERMANN), A., i, 780.
- benzaldehyde derivatives of (ALBERDA VAN EKERNSTEIN and BLANKSMA), A., i, 511.
- alkylated, addition of alkyl haloids to (IRVINE and MOODIE), T., 1578 ; P., 204.
- cyanogenetic, in various plants (DUNSTAN, HENRY, and AULD), A., ii, 794, 795 ; (HÉBERT), A., ii, 882.
- in some Belgian plants (JITSCHY), A., ii, 882.
- occurrence of, in orchids (GUIGNARD), A., ii, 119.
- of *Phaseolus lunatus* (ROBERTSON and WYNNE), A., ii, 112 ; (GUIGNARD), A., ii, 301 ; (KOHN-ABREST), A., ii, 625.
- occurrence of, in Rosaceæ (GUIGNARD), A., ii, 795.
- formation and quantitative variations of, in *Sambucus nigra* (GUIGNARD), A., ii, 118.
- reactions of (REICHARD), A., ii, 818.
- behaviour of Nessler's reagent towards some (ROSENTHALER), A., ii, 911.
- detection of, in plants by means of emulsin (BOURQUELOT), A., ii, 386.
- β*-**Glucosides**, action of emulsin on (RYAN and EBRISS), A., i, 918.
- Glucosides**. See also :—
- Aloe-emodin.
 - Amygdalin.
 - Arbutin.
 - ψ-Baptigenin.
 - ψ-Baptisin.
 - Convallamarin.
 - Digitoxin.
 - Elaterin.
 - Gypsophila-saponin.
 - Indican.
 - Kaempferitin.
 - Phaseolunatin.
 - Phloridzin.
 - Prulaurasin.
 - Salicin.
 - Sapogenin.
 - Sapouin.
 - Sapotoxin.
 - Scammonin.
 - Solanin.
 - Syringin.
 - Taxicatin.
 - Tutin.
 - Vitexin.

- Glues**, measurement of the gelatinising points and specific gravities of solutions of various (WINKELBLECH), A., ii, 639.
- Glutaconaldehydedianilide**, α -hydroxy-, hydrobromide of (ZINCKE and MÜHLHAUSEN), A., i, 33; (KÖNIG; DIECKMANN, BECK, and SZELINSKI), A., i, 109.
- Glutaconaldehydedi-p-chloroanilide**, hydroxy-, hydrochloride of (DIECKMANN, BECK, and SZELINSKI), A., i, 110.
- Glutaconaldehydedi-p-phenetidide**, α -hydroxy-, hydrobromide of (KÖNIG), A., i, 109.
- Glutaconic acid** (RUHEMANN), P., 137; (ROGERSON and THORPE), P., 146.
- Glutaconimide** derivatives, invertive power of (TORRESE), A., i, 531.
- Glutamic acid** from various proteids (OSBORNE and GILBERT), A., i, 324.
- Glutamine**, specific rotation of (SCHULZE), A., i, 813.
- Glutaric acid** and $\alpha\alpha'$ -dicyano-, ethyl ester (HIGSON and THORPE), T., 1458.
- $\alpha\beta$ -dihydroxy-, and its calcium salt, and lactone (KILIANI), A., i, 66.
- Gluten**, crude (NORTON), A., i, 324.
- monoamino-acids of (ABDERHALDEN and MALENGREAU), A., i, 914.
- Glyceric acid**, α - and β -thio-, optically active (NEUBERG and ASCHER), A., i, 937.
- "**Glycerins, pure**," arsenic in (GALIMARD and VERDIER), A., ii, 306.
- Glycerol**, method of distinguishing ethylene glycol from (OECHSNER DE CONINCK), A., i, 2.
- action of ammonia and amines on the formic esters of (VAN ROMBURGH and VAN DORSSEN), A., i, 3.
- in blood and its investigation by Zeisel's iodide method (TANGL and WEISER), A., ii, 868.
- tests for the purity of commercial (SCHMATOLLA), A., ii, 585.
- chemical and physical methods for the analysis of pure dilute aqueous solutions of (HENKEL and ROTH), A., ii, 129.
- estimation of, by distillation (JANSSENS), A., ii, 808.
- Glycerol**, nitro-. See Glyceryl trinitrate.
- Glycerose**, new method of formation of (TARUGI), A., ii, 631.
- Glyceryl triformate**. See Triformin.
- Glyceryl nitrate**, freezing and melting points of (KAST), A., i, 922.
- trinitrate (nitroglycerol)*, hydrolysis of (SILBERRAD and FARMER), T., 1759; P., 270.
- estimation of, in cordite (SILBERRAD, PHILLIPS, and MERRIMAN), A., ii, 633.
- d-Glycylphosphoric acid** (MAYER), A., i, 919.
- Glycylphosphoric acids**, natural and synthetical, relation between (TUTIN and HANN), T., 1749; P., 273.
- Glycidic acids**, $\alpha\beta$ -disubstituted, esters, synthesis of, and the ketones from them (DARZENS), A., i, 137.
- $\beta\beta$ -disubstituted, esters, preparation of (DARZENS and LEFÉBURE), A., i, 430.
- $\alpha\beta$ -trisubstituted, esters, method of synthesising, and the ketones from them (DARZENS), A., i, 62.
- Glycine (aminoacetic acid)**, amount of, from casein (SKRAUP), A., i, 123; (ABDERHALDEN and HUNTER), A., i, 545.
- amount of, in milk proteids (ABDERHALDEN and HUNTER), A., i, 545.
- methyl derivatives, affinity constants of (JOHNSTON), A., ii, 733; (WALKER), A., ii, 735.
- Glycine anhydride**, preparation of (FISCHER), A., i, 811.
- Glycine picrate** (LEVENE), A., i, 403.
- Glycinecarboxylic acid** and its anhydride (LEUCHS), A., i, 236.
- Glycines**, aromatic, action of ethyl chlorocarbonate on (A. and L. LUMIÈRE and BARBIER), A., i, 245.
- Glycocholic acid**, synthesis of (BONDI and MÜLLER), A., i, 633.
- and taurocholic acid, action of, on the pancreatic decomposition of fats (MAGNUS), A., ii, 691.
- Glycocynamine** and **Glycocyamidine** picrates (JAFFÉ), A., ii, 783.
- Glycogen**, distribution of, in horse-flesh (HEFELMANN and MAUZ), A., ii, 242.
- in pathological cases (LUBARSCH), A., ii, 471.
- post-mortem* disappearance of, in the muscles (KISCH), A., ii, 562.
- action of acetic anhydride saturated with hydrogen chloride on (SKRAUP, GEINSPERGER, V. KNAFFL-LENZ, MENTER, and SIRK), A., i, 68.
- muscular, action of adrenaline on (GATIN-GRUZEWSKA), A., ii, 566.
- analysis (PFLÜGER), A., ii, 240.
- detection of, in horse and foetal flesh (MARTIN), A., ii, 408.
- estimation of (DESMOULIÈRES), A., ii, 401; (PFLÜGER), A., ii, 812.

- Glycol.** See Ethylene glycol.
Glycol, $C_8H_{17}O_2$, from methylenecycloheptane (WALLACH and KÖHLER), A., i, 818.
 $C_{10}H_{20}O_2$ (two), from the lactones of α - and β -fencholenic acids (SEMMLER), A., i, 785.
 $C_{10}H_{20}O_2$, and its oxide, from the lactone of pulegenic acid (SEMMLER), A., i, 785.
Glycols, *s*-dissecondary, preparation of (BOUVEAULT and LOCQUIN), A., i, 783.
 α **Glycols**, migration of the phenyl group in (TIFFENEAU), A., i, 662.
 secondary-tertiary, transformation of, into ketones (TIFFENEAU and DORLENCOURT), A., i, 724.
Glycols, γ -, δ -, ϵ -, &c., and their derivatives, preparation of, from the corresponding lactones (SEMMLER), A., i, 784.
 formic esters, action of ammonia and amines on (VAN ROMBURGH and VAN DORSSSEN), A., i, 3.
Glycollic acid, thio-, and its ethyl ester, amide, salts, and metallic derivatives (KLASON and CARLSON), A., i, 232; (BILTMANN), A., i, 625.
 antimony derivative of, and its salts (RAMBERG), A., i, 396.
Glycollide, thio- (KLASON and CARLSON), A., i, 232.
Glycolyltropeine and its additive salts (JOWETT and HANN), T., 360; P., 61.
Glycolysis (RAPOPORT), A., ii, 40; (COHNHEIM), A., ii, 292.
Glycosuria. See Diabetes.
Glycuronic acid of blood corpuscles (LÉPINE and BOULUD), A., ii, 238.
Glycuronic acids, conjugated, the glucoside structure of (HILDEBRANDT), A., i, 84.
Glycyl-l-leucine and -tyrosine anhydrides (FISCHER and ABBERHALDEN), A., i, 719.
3-Glycyl-2-methylindole. See 3-Acetyl-2-methylindole, amino.
Glycyl-proline anhydride in the decomposition products of gelatin (LEVENE and WALLACE), A., i, 469; (LEVENE and BEATTY), A., i, 718.
Glyoxime peroxide and its salts (JOVITSCHITSCH), A., i, 732.
Glyoxime-peroxide-carboxylic acids and their salts (JOVITSCHITSCH), A., i, 732.
Glyoxime-peroxide-dicarboxylic acid, ethyl ester (WAHL), A., i, 624.
Glyoximines, cobalt salts of (TSCHUGAEFF), A., i, 814.
- Glyoxylamide**, azine and oxamic acid hydrazone of (CURTIUS, DARAPSKY, and MÜLLER), A., i, 939.
Glyoxylic acid, occurrence of, in urine (INADA), A., ii, 109.
 formation of (DAKIN), A., ii, 374.
 detection and physiological relations of (SCHLOSS), A., ii, 785.
Glyoxylic acid, ethyl ester, action of ammonia on (SIMON and CHAVANNE), A., i, 396.
 action of carbamide and of urethane on (SIMON and CHAVANNE), A., i, 636.
Gold in the trias of Meurthe-et-Moselle (LAUR), A., ii, 556.
 crystallised, from Pralorgnan, Val d'Aosta (MILLOSEVICH), A., ii, 368.
 precipitation of metallic (JAMESON), A., ii, 35.
 electrolytic precipitation of, with the use of a rotating anode (WITHROW), A., ii, 903.
 electrolytic precipitation of, from cyanide solutions (NEUMANN), A., ii, 764.
 colloidal, history of (VANINO), A., ii, 618.
 hydrosols, production of, by ethereal oils (VANINO and HARTL), A., ii, 367.
 melting point of (JAQUEROD and PERROT), A., ii, 34.
 distillation of (MOISSAN), A., ii, 92.
 thiocarbamide as a solvent for (MOIR), T., 1345; P., 105, 164.
Gold alloys with antimony and with bismuth (VOGEL), A., ii, 679.
 with cadmium (VOGEL), A., ii, 288.
 with copper and tin (MOISSAN), A., ii, 92.
 with zinc (VOGEL), A., ii, 287.
Gold purple (purple of Cassius), new preparation of (MOISSAN), A., ii, 92.
Aurous bromide, chloride, and iodide, compounds of, with ammonia (MEYER), A., ii, 664.
Auric chloride, compound of, with hydrogen chloride (*hydrogen aurichloride*) (SCHMIDT), A., ii, 862.
Auryl barium oxide, crystallised (WEIGAND), A., i, 136.
Gold and platinum, detection of, in inorganic analysis (PETERSEN), A., ii, 583.
 estimation of (GOLDSCHMIDT; DONAU), A., ii, 309.
 estimation of small amounts of, colorimetrically (MAXSON), A., ii, 496.
Gold nuclei, amicroscopic (ZSIGMONDY), A., ii, 679.

- Gold-thiocarbamide chloride and sulphate** (MOIR), T., 1346; P., 105, 164.
- Gondic acid** from the gum of *Cochlospermum Gossypium* (ROBINSON), T., 1497; P., 242.
- Gonystylol** and **Gonystyrene** from *Gonystylus Miquelianus* (EYKEN), A., i, 298.
- Gorceixite** from the diamantiferous sands of Brazil (HUSSAK), A., ii, 767.
- Gout**, excretion of amino-acids in (LIPSTEIN), A., ii, 109.
- Grapes** from Schariare, Persia (LE-COMTE), A., ii, 625.
effect of improving, on their composition (CURYEL), A., ii, 46.
dried, used in the preparation of Tokay wine, composition of (KRÁM-SKY), A., ii, 119.
- Graphite**, production of, from metallic carbides (FRANK), A., ii, 21.
influence of foreign elements on the separation of, from cast iron (WÜST, KREITEN, and PÜTZ), A., ii, 302.
- Greenheart**, Surinam, yellow colouring matter in (BLOEMENDAL), A., i, 873.
- Grignard's reaction** (MEYER and TÖGEL), A., i, 757.
theory of (ABEGG), A., i, 57.
application of, for asymmetric syntheses (MCKENZIE), T., 365; P., 61; (MCKENZIE and WREN), T., 688; P., 107.
- Grignard's reagent**, action of, on *o*- or γ -aldehydo-acids (SIMONIS, MARBEN, and MERMOD), A., i, 32.
See also Magnesium organic compounds.
- Grindelia**, examination of (POWER and TUTIN), A., ii, 885.
- Groups**, functional (reactive), relations between, in remote positions (BLAISE and HOUILLON), A., i, 692, 764.
- Growth**, influence of diet on (WATSON and HUNTER), A., ii, 101, 239.
- Guaiacol**, 4-amino-, and 3-nitro-4-amino-, and their acyl derivatives, and 3:4-diamino- (FICHTER and SCHWAB), A., i, 842.
5-nitro- (PAUL), A., i, 843.
thio-, and its xanthate (MAUTHNER), A., i, 421.
- Guaiacolmonosulphonic acids**, constitution of (PAUL), A., i, 843.
- Guaiaconic acids** (RICHTER), A., i, 443.
- β -Guaiacoxy- β -phenylacrylamide** (MOUREU and LAZENNEC), A., i, 432.
- β -Guaiacoxy- β -phenylacrylonitrile** (MOUREU and LAZENNEC), A., i, 276.
- Guaiacum-blue** (RICHTER), A., i, 443.
- Guaiacum resin** (RICHTER), A., i, 442.
- Guaiol**, presence of, in an odiferous wood from New Guinea (EYKEN), A., i, 295.
- Guanidine** and its derivatives, condensation of, with malononitrile and its alkyl homologues (MERCK), A., i, 537.
picrate, probable stereoisomerism of nitrogen in (v. CORDIER), A., i, 486; (v. GULEWITSCH), A., i, 637.
detection of (ACKERMANN), A., ii, 505.
- Guanidine**, amino-, preparation of, from nitroguanidine (BOEHRINGER & SÖHNE), A., i, 637.
cyano-. See Dicyanodiamide.
nitroso-, Thiele's, metallic derivatives of (TSCHUGAEFF), A., i, 984.
- Guanine**, preparation of (MERCK), A., i, 456.
fermentation of (ULPIANI and CINGOLANI), A., ii, 189.
- Guanyldiethylbarbituric acid**, preparation of (CHEMISCHE FABRIK VON HEYDEN, AKTIEN-GESELLSCHAFT), A., i, 894.
- Guinea-pigs' bones**, heat of combustion and composition of (TRIBOT), A., ii, 375.
- Gum** of *Cochlospermum Gossypium* (ROBINSON), T., 1496; P., 242.
- Gummases** (TSCHIRCH and STEVENS), A., i, 31.
- Gun-cotton**, hydrolysis of (SILBERRAD and FARMER), T., 1763; P., 270.
- Gunpowder**, made about 1641, recently discovered in Durham Castle, composition of (SILBERRAD and SIMPSON), P., 172.
- Guutta percha** (CASPARI), A., i, 100.
from *Palaquium Treubi*, constituents of (JUNGFLEISCH and LEROUX), A., i, 525.
occurrence of β -amyrrin acetate in some varieties of (VAN ROMBURGH and COHEN), A., i, 197.
- presence of lupeol in some kinds of (VAN ROMBURGH), A., i, 20.
and caoutchouc hydrocarbons and their ozonides (HARRIES), A., i, 30.
- Gymnogramme calomelanos** and *G. chrysophylla*, glandular secretions of (ZOPF), A., i, 871.
- Gymnogrammen** and **Gymnogrammidin** (ZOPF), A., i, 871.
- Gypsophila-saponin** from the Levantine soapwort (ROSENTHALER), A., i, 32.
- Gypsum** in Vesuvian ash (BRAUNS), A., ii, 556.
lime, and water, composition of mixtures of, at 25° (CAMERON and BELL), A., ii, 751.

Gypsum, solubility of, in solutions of ammonium sulphate (BELL and TABER), A., ii, 352; (D'ANS), A., ii, 751.
solubility of, in magnesium sulphate solutions (CAMERON and BELL), A., ii, 353.
Gyrolite from Brazil (HUSSAK), A., ii, 555.

H.

Hæmalkalimetry (MOORE and WILSON), A., ii, 565.

Hæmotic acids, constitution of (KÜSTER, GALLER, HAAS, and MEZGER), A., i, 337.

Hæmatin, crystallised (PIETTRE and VILA), A., i, 55.

Hæmatite and rutile, regular intergrowth of (BAUMHAUER), A., ii, 456.
titaniferous, from Pralorghan, Val d'Aosta (MILLOSEVICH), A., ii, 369.

Hæmatogen and the formation of haemoglobin (HUGOUNENQ and MOREL), A., i, 468.

Hæmatovin (HUGOUNENQ and MOREL), A., i, 468.

Hæmatoxylin and brazilin (ENGELS and PERKIN), P., 132; (PERKIN and ROBINSON), P., 160; (HERZIG and POLLAK), A., i, 198; (HERZIG, POLLAK, FISCHER, KLUGER, and MAYRHOFER), A., i, 871.

Hæmochromogen, value of the spectrum of (DE DOMINICUS), A., ii, 134.

Hæmoglobin, formation of, in the embryo (HUGOUNENQ and MOREL), A., ii, 95.

capacity of, for combining with alkali (ABEL and v. FÜRTH), A., i, 546.
action of quinine on (MARX), A., i, 546.

See also Methæmoglobin and Oxy-hæmoglobin.

Hæmoglobinuria, paroxysmal (EASON), A., ii, 296.

Hæmolysin formation (BANG and FORSSMAN), A., ii, 558.

Hæmolysis *in vitro* and *in vivo* (v. WUNSCHHEIM), A., ii, 97.

Hæmopyrrole, constitution of (KÜSTER and HAAS), A., i, 693.

Hæmotricarboxylic acid and its isomeride and their salts (KÜSTER, GALLER, HAAS, and MEZGER), A., i, 337.

Halogen atoms, substitution of alkyl-oxy-groups for, in aromatic compounds (WERNER, SCHORNDORFF, and CHOROWER), A., i, 180; (GOLD-SCHMIEDT), A., i, 241.

Halogen compounds, naturally-occurring, coloration of (WÖHLER and KASARNOWSKI), A., ii, 22.
free energy of, computed from the results of potential measurements (THOMPSON), A., ii, 517.
combustion of, in presence of copper oxide (ROBINSON), A., ii, 496.
organic, reaction of, with silver nitrate (v. EULER), A., i, 789.

Halogen ions, abnormal anodic polarisation produced by (MÜLLER and SCHELLER), A., ii, 64.

Halogens, glow discharge in the (MATTHIES), A., ii, 6.

estimation of (MOIR), P., 261.

estimation of, in organic compounds (VAUBEL and SCHEUER), A., ii, 250; (SCHIFF; BERRY), A., ii, 797.

use of hydrogen peroxide in the quantitative separation of the (JANNASCH and ZIMMERMANN), A., ii, 194; (JANNASCH), A., ii, 894.

See also Bromine, Chlorine, Fluorine, and Iodine.

Halohydrins, migration of the phenyl group in the (TIFFENEAU), A., i, 662.

Hartite from the diamantiferous sands of Brazil (HUSSAK), A., ii, 767.

Heart, respiration of (NEWMAN), A., ii, 237.

vagus inhibition in the, and salts of the blood (HOWELL), A., ii, 179.

action of barium chloride on the (FILIPPI), A., ii, 466.

action of chloral hydrate on the (ROHDE), A., ii, 110; (CARLSON), A., ii, 877.

pharmacological action of digitalis, straphanthus, and squill on the (HAYNES), A., ii, 243.

action of nutritive fluids on the (FINN), A., ii, 40.

frog's, feeding of the (MCGUIRE), A., ii, 39.

action of carbon dioxide on the (SALTER), A., ii, 39.

action of ethyl alcohol and related alcohols on the (DOLD), A., ii, 558.

frog's and turtle's, respiration of the (DIVINE), A., ii, 40.

of Limulus. See Limulus.

excised mammalian, revival of the, by perfusion with oil (SOLLMANN), ii, 103.

survival of the (LOCKE and ROSENHEIM), A., ii, 103.

Heart activity and osmotic pressure (CARLSON), A., ii, 241.

chemical conditions for (CARLSON), A., ii, 558.

- Heart** beat, influence of temperature on (ROBERTSON), A., ii, 465.
 frequency, influence of electrolytes on (ROBERTSON), A., ii, 179.
 muscle. See under Muscle.
 rhythm, theories of, in relation to the rate of diffusion of salts of blood into solutions of non-electrolytes (DENIS), A., ii, 776.
 the cause of cessation of, in isotonic solutions of non-electrolytes (CARLSON), A., ii, 466.
- tissue**, absorption and consumption of oxygen in (MARTIN), A., ii, 238.
- Heat**. See under Thermochemistry.
- Heating effects** produced by Röntgen rays in different metals and their relation to the question of change in the atom (BUMSTEAD), A., ii, 141.
- Heerabol-myrrhols**, and -myrrholos, α - and β -, and **Heeraboresen** (TSCHIRCH and BERGMANN), A., i, 197.
- Helium** and argon, occurrence of, in malacone (KITCHIN and WINTERSON), T., 1568; P., 251.
 production of, from radium (CROOKES), A., ii, 717.
 from radium bromide, spectrum of (GIESEL), A., ii, 514.
 presence of, in thermal springs (MOUREU), A., ii, 442.
 chemical behaviour of (COOKE), A., ii, 539.
 behaviour of, in a platinum-iridium vessel at high temperatures (DORN and CARIO), A., ii, 539.
 attempt to liquefy (OLSZEWSKI), A., ii, 22.
 and argon, comparative observations on the evolution of gas from the cathode in (SKINNER), A., ii, 824.
 mixtures of, with argon, coefficient of internal friction of (TÄNZLER), A., ii, 728.
- Hemicelluloses** (CASTORO), A., ii, 884.
- Hemimellithene**. See 1:2:6-Trimethylbenzene.
- Hemimellithenol**, dibromo-, and its acetate and aniline derivatives (AUWERS, JESCHECK, SCHRÖTER, MARKOVITS, and ROEVER), A., ii, 355.
- Hemimellithyl alcohol**, s -dibromo-*p*-hydroxy-, and its acetates, bromide, and methyl ether (AUWERS, JESCHECK, SCHRÖTER, MARKOVITS, and ROEVER), A., i, 354.
- Hemimellithyl bromide**, *d*bromo-*p*-hydroxy-, preparation of, and its compounds with bases (AUWERS, KIPKE, SCHRENK, and SCHRÖTER), A., i, 263.
- Hemimellitic acid**, 3:5-dichloro-, and its anhydride, imide, and methyl esters (CROSSLEY and HILLS), T., 884; P., 144.
- m-Hemipinic acid**, formation of (PERKIN and WEIZMANN), T., 1651.
- Hens' eggs**. See under Eggs.
- Heptacyclic compounds**, new (WALLACH), A., i, 370.
- Heptacyclic compounds**, $\alpha\delta\eta$ -tri-bromo- and -iodo- (HAMONET), A., i, 59.
 $\alpha\eta$ -diiodo- (DIONNEAU), A., i, 134.
 See also $\beta\beta$ -Dimethylpentane and Pentamethyllethane.
- cycloHeptane-1-carboxylic acid**, 1-amino-, and its salts (ZELINSKY and STADNIKOFF), A., i, 426.
- Heptanedicarboxylic acids**. See Azelaic acid, $\beta\beta$ -Dimethylpimelic acid, and Dipropylmalonic acid.
- Heptane- $\alpha\gamma$ -diol**, diethyl ether and di-iodo-derivative of (DIONNEAU), A., i, 134.
- Heptanetetracarboxylic acid**. See $\alpha\gamma\gamma$ -Trimethylbutane- $\alpha\beta\beta$ -tetracarboxylic acid.
- Heptanetricarboxylic acids**. See $\beta\beta\beta$ -Dimethylpentanetricarboxylic acid, γ -Ethylpentane- $\beta\delta\alpha$ -tricarboxylic acid, and $\alpha\gamma\gamma$ -Trimethylbutane- $\alpha\beta\delta$ -tricarboxylic acid.
- s-Heptane- $\alpha\delta\eta$ -triol series**, synthesis in the (HAMONET), A., i, 58.
- Heptenoic acids**. See $\alpha\alpha$ -Dimethylpentenoic acids and $\alpha\alpha\beta$ -Trimethyl- $\Delta\beta$ -butenoic acid.
- β -Heptene- δ -ol** and its acetate (REIF), A., i, 394.
- Heptenyl alcohols**. See Dimethylisobutylcarbinol, $\beta\beta$ -Dimethyl- $\Delta\gamma$ -pentenol, *tert*-Methylhexenol, and $\beta\beta\gamma$ -Trimethyl- $\Delta\gamma$ -butenol.
- Heptinene**. See $\beta\delta$ -Dimethyl- $\Delta\alpha$ -pentadiene.
- Heptinoic acid**. See $\alpha\alpha$ -Dimethylisopropenylacetic acid.
- Heptoic acids**. See Dimethylvaleric acids, Ethylpivalic acid, α -Methylhexoic acids, and $\alpha\alpha\beta$ -Trimethylbutyric acid.
- Heptyl alcohol**. See Pentamethyl-ethanol, bromide (MABERY and QUAYLE), A., i, 395.
- peroxide (*o*nanthyl peroxide)** (HARRIES and LANGFIELD), A., i, 226.
- Heptyl- and Heptylidene-camphors**, rotatory power of (HALLER and MARCH), A., i, 296.
- Heptylthiophan** and its sulphone (MABERY and QUAYLE), A., i, 395.
- Heteroalbumose**, feeding experiments with (HENRIQUES and HANSEN), A., ii, 779.

- Heterocyclic compounds**, formation of, from hydrazine derivatives (STOLLÉ), A., i, 453; (STOLLÉ and THOMAE), A., i, 451; (STOLLÉ and WEINDEL), A., i, 707; (STOLLÉ and BAMBACH), A., i, 709.
N-amino- (FRANZEN), A., i, 706.
- Heteroxanthine**, affinity constants of (WOOD), T., 1840; P., 271.
- Heulandite**, decomposition of (HILLEBRAND), A., ii, 772.
- Heusler's magnetic alloy**. See Manganese alloy with aluminium and copper.
- Hevea brasiliensis*, quebrachitol in the latex of (DE JONG), A., ii, 248.
 seeds, constituents of, A., ii, 247.
 oil of (SCHROEDER), A., ii, 132.
- Hexadecylthiophan** (MABERY and QUAYLE), A., i, 395.
- Hexadiene**. See Diallyl.
- β -Hexahydroanthracene** (GODCHOT), A., i, 494.
- Hexahydroanthroneoxime** (GODCHOT), A., i, 76.
- Hexahydrobenzaldehyde** and its semi-carbazone and polymerides (WALLACH and ISAAC), A., i, 564.
- Hexahydrobenzyl iodide** (FREUNDLER), A., i, 283.
- Hexahydro-benzyl- and -benzylidene-camphors**, rotatory powers of (HALLER and MARC), A., i, 296.
- Hexahydrocarvacrols**. See α - and β -Carvacromenthols.
- Hexahydrometanicotine** and its platinichloride (MAAS and HILDEBRANDT), A., i, 980.
- Hexahydrothiophenol**. See *cyclo*Hexyl mercaptan.
- Hexahydro-*o*-tolualdehyde** and its semi-carbazone (WALLACH and BESCHKE), A., i, 565.
- Hexahydro-*p*-tolualdehyde** and its semi-carbazone (WALLACH and EVANS), A., i, 566; (MARCKWALD and METH), A., i, 663.
- Hexahydro-*o*-, *m*-, and *p*-tolualdehydes** (DARZENS and LEFÉBURE), A., i, 430.
- Hexahydro-*m*- and *p*-toluic acids**. See 1-Methylcyclohexane-3- and -4-carboxylic acids.
- Hexahydro-*p*-tolylacetic acid** and α -bromo- (PERKIN and POPE), P., 108.
- Hexahydro-*p*-tolylcarbinol** and its bromide (PERKIN and POPE), P., 108.
- Hexahydrovaleritrine** and its additive salts (TSCHITSCHIBABIN), A., i, 451.
- 2:3:4:3':4':5'-Hexamethoxybenzophenone** (PERKIN, WEIZMANN, and HARDING), T., 1665.
- 2:4:5:2':4':5'-Hexamethoxydibenzylidenebenzidine** and its hydrochloride (FABINYI and SZÉKI), A., i, 423.
- Hexamethoxydiphenylphthalide** (PERKIN and WEIZMANN), T., 1657.
- p*'*p*'''-Hexamethyltriamino-*o*'''-mono- and *o*'*o*''-di-hydroxytriphenylmethanes** and their acetyl derivatives (NOELTING and GERLINGER), A., i, 610.
- Hexamethylenetetramine**. See Urotropine.
- Hexamethylenethane** ($\beta\beta\gamma\gamma$ -tetramethylbutane) (HENRY), A., i, 473.
 new synthesis of (HENRY and DE WAEL), A., i, 782.
- Hexane**, action of chlorine on (MICHAEL and TURNER), A., i, 550.
 See also $\beta\gamma$ -Dimethylbutane.
- iso***Hexane** (ethylisobutyl) (CLARKE and SHREVE), A., i, 473.
- cyclo****Hexanealdehyde**. See Hexahydrobenzaldehyde.
- cyclo****Hexane-1-carboxylic acid**, 1-amino-, and its salts (ZELINSKY and STADNIKOFF), A., i, 425.
- Hexanedicarboxylic acids**. See Dimethyladipic acids and Methylpropylsuccinic acid.
- Hexane- $\alpha\zeta$ diol**, asymmetric derivatives of (DIONNEAU), A., i, 134.
- cyclo****Hexane series**, researches in the (FREUNDLER), A., i, 283, 733.
- Hexanetricarboxylic acid**. See $\beta\beta$ -Dimethylbutane- $\alpha\gamma\delta$ -tricarboxylic acid.
- cyclo****Hexanolacetic acid** and its ethyl ester (WALLACH and ISAAC), A., i, 176, 564.
- cyclo****Hexanone**, reactions of (WALLACH and ISAAC), A., i, 176.
 condensation of, with ethyl chloroacetate (DARZENS and LEFÉBURE), A., i, 430.
 tautomerism of (MANNICH), A., i, 432.
- cyclo****Hexanone**, 2-chloro-, and 2-hydroxy-, and its semicarbazone (BOUVEAULT and CHEREAU), A., i, 513.
- Hexanones**, formation of (MICHAEL), A., i, 559.
- cyclo****Hexanone-3-carboxylic acid** and its ethyl ester (PERKIN and TATTERSALL), P., 268.
- cyclo****Hexanone-4-carboxylic acid**, preparation of (KAY and PERKIN), T., 1640; P., 270.
- cyclo****Hexanone-2:4-dicarboxylic acid**, ethyl ester (KAY and PERKIN), T., 1647; P., 270.
- cyclo****Hexanoneisooxime**, hydrolysis and reduction of (WALLACH), A., i, 175.

- Hexaresorcinolmellitein.** See *s-Tri-xanthylbenzene-2:4:6-tricarboxylic acid*, 3:6:9:3':6':9':3":6":9"-*nona-hydroxy*.
- Δ^α-Hexatriene**, preparation, reactions, and bromides of (VAN ROMBURGH and VAN DORSSEN), A., i, 180, 722.
- Δ^β-Hexene**, δ-chloro-, and **Δ^β-Hexene-δ-ol** and its acetate (REIF), A., i, 394.
- cycloHexene** nitrosochloride (WALLACH), A., i, 175.
- ozonide** (HARRIES and NERESHEIMER), A., i, 833.
- cycloHexeneacetic acid** and its oxidation (WALLACH and ISAAC), A., i, 176.
- cycloHexenealdehyde.** See Δ^1 -Tetrahydrobenzaldehyde.
- Hexenoic acid.** See $\alpha\alpha$ -Dimethylisocrotonic acid.
- Hexenyl alcohols.** See Dimethylallylcarbinol, Dimethylbutenol, Dimethyl-isopropenylcarbinol, and Methylpentenol.
- Hexinene.** See $\beta\gamma$ -Dimethyl- $\Delta\alpha\gamma$ -butadiene.
- Δ^β-Hexinene**, course of the addition of water to (MICHAEL), A., i, 559.
- Hexinoic acid.** See Sorbic acid.
- Hexoic acid, α-amino-**. See Leucine. ε-amino-, and its oxidation (WALLACH), A., i, 175.
- d-isoHexoic acid**, α-bromo-, and its chloride, preparation of (FISCHER), A., i, 811.
- Hexoic acids.** See also α -*tert*-Butyl-acetic acid, Dimethylbutyric acids, and α-Ethylbutyric acid.
- Hexonoin** (BOUVEAULT and LOCQUIN), A., i, 783.
- d-isoHexoyl-d-alanine** (FISCHER), A., i, 810.
- d-isoHexoylglycine**, α-bromo- (FISCHER), A., i, 809.
- isoHexoylglycylglycines**, α-bromo-, and their chlorides (FISCHER), A., i, 145, 808.
- d-isoHexoyl-L-leucine**, α-bromo- (FISCHER), A., i, 810.
- Hexyl alcohol** (b.p. 116—125°) and bromide (DELACRE), A., i, 477.
- Hexyl alcohol**, constitution of, from the hexylene from mannitol (MICHAEL and HARTMAN), A., i, 551. See also $\gamma\gamma$ -Dimethylbutane-β-ol, Dimethylisopropylcarbinol, Methylbutylcarbinols, Methyldiethylcarbinol, and Pinacolyl alcohols.
- Hexyl bromide** (MABERY and QUAYLE), A., i, 395.
- cycloHexyl mercaptan**, methyl sulphide, trithiocarbonate, and xanthiate (BORSCHE and LANGE), A., i, 165.
- cycloHexylacetic acid, α-amino-**, and its picrate (ZELINSKY and STADNIKOFF), A., i, 425.
- cycloHexylacetone** and its semicarbazone (FREUNDLER), A., i, 283.
- cycloHexylamine** and its derivatives (WALLACH), A., i, 175.
- cycloHexyldimethylsulphonium chloride**, hydroxide, iodide, and platinichloride (BORSCHE and LANGE), A., i, 165.
- Hexylenes.** See Dimethylbutylenes and Tetramethylethylene.
- Hexylenediamine.** See $\beta\gamma$ -Dimethylbutane, $\beta\gamma$ -diamino-.
- Hexylenedicarboxylic acids.** See Methylpentenedicarboxylic acid and Methylpropylmaleic acid.
- Hexylpropionic acid** and its amide and nitrile (MOUREU and LAZENNEC), A., i, 148.
- a-cycloHexyl-n- and -iso-propyl alcohols** (FREUNDLER), A., i, 283.
- 2-Hexylpyrrolidine** and its additive salts and carbamide (BLAISE and HOUILLOX), A., i, 764.
- Hexylsuccinic acid**, preparation of (HIGSON and THORPE), T., 1469; P., 242.
- Hexylthiophansulphone** (MABERY and QUAYLE), A., i, 395.
- Hippocoprosterols, α- and β-** (GITTEL-MACHER-WILENKO), A., i, 759.
- Hippuric acid** and its ethyl ester and nitrile, *o*-, *m*-, and *p*-iodo- (JOHNSON and MEADE), A., i, 852.
- Hippurylglycolylaminoacetic acid**, ethyl ester (CURTIUS and DARAPSKY), A., i, 403.
- Hippuryl-glycolyl- and -glycylglycolyl-glycylglycines**, ethyl esters (CURTIUS and THOMPSON), A., i, 404.
- 3-Hippuryl-2-methylindole** (FISCHER and KAAS), A., i, 455.
- Hirtae acid** and its salts (HESSE), A., i, 280.
- Histidine**, constitution of (WINDAUS and KNOOP), A., i, 880.
- decomposition of, and its benzoyl derivative (FRÄNKEL), A., i, 547.
- Histidine anhydride** and its salts (FISCHER and SUZUKI), A., i, 73.
- Histidinecarboxylic acid** and chloro- (FRÄNKEL), A., i, 547; (WINDAUS and KNOOP), A., i, 880.
- Histidylhistidine** and its picrate (FISCHER and SUZUKI), A., i, 73.
- Hoff-Raoult formula**, the van't (BANCROFT), A., ii, 523.
- Hofmann's reaction** (MONR), A., i, 252, 357.
- Homatropine hydrobromide**, toxicity of (BERTOZZI), A., ii, 475.

- Homocatechol** dimethyl ether. See Dimethylhomocatechol.
- Homoeriodictyol** (POWER and TUTIN), A., ii, 885.
- Homofluorindine**, preparation of (LEICESTER), P., 41.
- Homogentisic acid** (*alcapton*; 2:5-dihydroxyphenylacetic acid), is, formed in seedlings by the decomposition of tyrosine? (SCHULZE and CASTORO), A., ii, 793.
- uniformity of the excretion of, in alkaptonuria (GARROD and HELE), A., ii, 108.
- estimation of, in urine (GARROD and HURTELY), A., ii, 130.
- Homopiperonaldoxime** and its acetyl derivative, **Homopiperonyl alcohol**, **Homopiperonyl-amine** and -nitrile (MEDINGER), A., i, 421.
- Homopivalone** (BOUVEAULT and LOCQUIN), A., i, 784.
- Homosalicyldehydes**, α - and β -, from *m*-cresol, and their metallic derivatives, methyl ethers, oximes, phenylhydrazones, and semicarbazones (CHUIT and BOLSING), A., i, 282.
- Homoterpenylic acid**, synthesis of (SIMONSEN), P., 307.
- Hordenine** from malt germs and its derivatives (LÉGER), A., i, 204.
- constitution of (LÉGER), A., i, 761; (GAEBEL), A., i, 979.
- physiological action of (CAMUS), A., ii, 188.
- sulphate, physiological action of (CAMUS), A., ii, 244.
- Horse**, digestion in the, when fed on maize (SCHEUNERT and GRIMMER), A., ii, 239.
- flesh, distribution of glycogen in (HEFELMANN and MAUZ), A., ii, 242.
- detection of, by the glycogen estimation (MARTIN), A., ii, 408.
- muscle. See under Muscle.
- urine. See under Urine.
- Humus**, formation of (SUZUKI), A., ii, 889.
- analysis of natural (MICHELET and SEBELIEN), A., ii, 388.
- Hydantoin**, acidic constants of (WOOD), T., 1833.
- action of bromine on (GABRIEL), A., i, 636.
- Hydrargyrum oxycyanatum**. See Mercuric oxycyanide under Mercury.
- Hydrates** in aqueous solutions (BILTZ), A., ii, 737.
- formation of, in solution and the anomalous character of solubility curves (VAN LAAR), A., ii, 275.
- Hydrates**, difference between hydrogels and (VAN BEMMELEN), A., ii, 430.
- bearing of, on the temperature-coefficients of conductivity of aqueous solutions (JONES), A., ii, 327.
- of compounds containing a carbonyl group, formation of (COLLES), T., 1246; P., 207.
- Hydrazine**, formation of, by means of the Tesla discharge (FINDLAY), A., ii, 261.
- action of nitrous acid on (FRANCKE), A., ii, 82.
- derivatives, conversion of, into heterocyclic compounds (STOLLÉ), A., i, 453; (STOLLÉ and THOMAE), A., i, 461; (STOLLÉ and WEINDEL), A., i, 707; (STOLLÉ and BAMBACH), A., i, 709.
- salts, estimation of, iodometrically, and their use in volumetric analysis (RIMINI), A., ii, 897.
- double salts with copper, crystallography of (RANALDI), A., ii, 664.
- hydrate, action of, on complex cobalt salts (FRANZEN and v. MAYER), A., ii, 859.
- platinocyanide and its hydrates (LEVY and SISSON), T., 125.
- sulphate, action of, on potassium permanganate (MEDRI), A., ii, 628.
- estimation of, gasometrically, by mercury salts (EBLER), A., ii, 53.
- Hydrazines**, some methods of forming, and their influence on biochemical analysis (TARUGI), A., ii, 136.
- quaternary, new method of preparation and properties of (FRANZEN and ZIMMERMANN), A., i, 702.
- Hydrazinecarboxylic acid**, copper and nickel salts (CALLEGARI), A., i, 937.
- 4-Hydrazino-2-nitrostilbene** (SACHS and HILPERT), A., i, 242.
- Hydrazobenzene**, crystallographic constants of (JAEGER), A., i, 112.
- trinitro-, and its isomeride (CIUSA and AGOSTINELLI), A., i, 892.
- o*-**Hydrazobenzoic acid**, formation of indazyl derivatives from (CARRÉ), A., i, 705.
- p*-**Hydrazobenzoic acid**, 2-nitro-, ethyl ester (WERNER and PETERS), A., i, 220.
- Hydrazodicarbonamide** (LIEBERMANN), A., i, 557.
- Hydrazodicarbonanilide** (BÜLOW and SAUTERMEISTER), A., i, 314.
- Hydrindene-5-aldehyde** and its azine, oxime, and aniline derivative and **Hydrindene-5-carboxylic acid** (GATTERMANN), A., i, 592.

- 3-Hydrindone**, 2-acetyl and 2-benzoyl derivatives and their phenylhydrazones and pyrazole derivatives (THIELE and FALK), A., i, 750.
- Hydriodic acid**. See under Iodine.
- Hydroaloetic acid** (OESTERLE), A., i, 973.
- Hydroanisoin** and *iso***Hydroanisoin** (LAW), T., 1515, 1525; P., 237.
- Hydroaromatic compounds**, study of (BRITISH ASSOCIATION REPORT), A., ii, 941.
- ozonides of (HARRIES and NERESHEIMER), A., i, 833.
- Hydrobenzoin** (KLAGES), A., i, 674.
- transposition of (TIFFENEAU and DORLEN COURT), A., i, 724.
- Hydrobromic acid**. See under Bromine.
- Hydrocarbon** with two conjugated systems of double bonds (VAN ROMBURGH and VAN DORSSSEN), A., i, 130.
- $C_{10}H_{16}$, from caoutchouc and gutta-percha (HARRIES), A., i, 30.
- $C_{11}H_{18}$, from carvone and magnesium methyl iodide (RUPE and LIECHTENHAN), A., i, 374.
- $C_{12}H_{22}$, from the action of dilute sulphuric acid on the pinacone from ethyl propyl ketone (GOLDBERGER and TANDLER), A., i, 58.
- $C_{15}H_{18}$, and its dibromide, from the pinacone from phenyl ethyl ketone (STERN), A., i, 271.
- $C_{32}H_{26}$, from the alcohol $C_{32}H_{28}O$, from α -isodypnopinacolin (DAELS), A., i, 357.
- $C_{36}H_{26}$, from phenylidiphenylenechloromethane (GOMBERG and CONE), A., ii, 414.
- $C_{54}H_{82}$ (or $C_{54}H_{86}$), from the action of acetic anhydride on the pinacone $C_{54}H_{86}O_2$, from cholestenone (WINDAUS), A., i, 174.
- Hydrocarbons**, preparation of, by the reduction of aromatic carbinols (KLAGES, GIESER, and LAUCK), A., i, 661.
- obtained from the electrolysis of salts of organic acids (PETERSEN), A., i, 331.
- cryoscopy of, in phenol solution (ROBERTSON), T., 567; P., 82.
- apparatus for the combustion of, in oxygen (ANDERLINI), A., ii, 605.
- and oxygen, interaction of well-dried mixtures of (BONE and ANDREW), T., 652; P., 78.
- the explosive combustion of (BONE and DRUGMAN), T., 660; P., 78; (BONE, DRUGMAN, and ANDREW), T., 1614; P., 272.
- Hydrocarbons**, oxidation of, by ozone at low temperatures (DRUGMAN), T., 939; P., 163.
- acetylenic, in Louisiana petroleum (COATES), A., i, 329.
- aromatic, new (VORLÄNDER and SIEBERT), A., i, 345.
- critical temperature and value of $\frac{ML}{\Theta}$ of some (BROWN), T., 314; P., 39.
- additive compounds of, with poly-nitro-derivatives (BRUNI and FERRARI), A., i, 491.
- benzenoid, optically active (KLAGES and SAUTTER), A., i, 489.
- cyclic, conversion of, into alicyclic aldehydes (WALLACH), A., i, 563.
- fatty, conditions under which metal-ammonium compounds reduce halogen derivatives of (CHABLAY), A., i, 130.
- gaseous, behaviour of, towards magnesium at a red heat (LIDOFF and KUSNEZOFF), A., ii, 201.
- methylene. See Methylene hydrocarbons.
- unsaturated, and sulphur compounds in Canadian petroleum (MABERY and QUAYLE), A., i, 394.
- Hydrocarbons**, halogen derivatives, cryoscopy of, in phenol solution (ROBERTSON), T., 567; P., 82.
- solubility of, in water (REX), A., ii, 342.
- prim-dinitro*-, new method of preparing (PONZIO), A., i, 735.
- See also Olefines, Paraffins, Sesquiterpenes, and Terpenes.
- Hydrocéle fluid**, dextrose in (PATEIN), A., ii, 294.
- Hydrochloric acid**. See under Chlorine.
- Hydrocinnamide**, action of sodium hypochlorite and of bromine and sodium alkyl oxides on (WEERMAN and JONGKEES), A., i, 665.
- Hydrocinnamylidenefluorene**, polymers of (THIELE and HENLE), A., i, 573.
- Hydrocobalticyanic acid**. See under Cobalt.
- p-Hydrocoumaric acid**, carbamide and phenylcarbamide derivatives of, synthesis of (HUGOUNENQ and MOREL), A., i, 85.
- Hydrocoumarilic acid**. See Coumaranilic acid.
- Hydrocuminoïn** and *iso***Hydrocuminoïn** (LAW), T., 1514; P., 237.
- Hydrocyanic acid**. See under Cyanogen.
- Hydrodicamphenes** (HESSE), A., i, 375.
- Hydroergotinine** (KRAFT), A., i, 979.

Hydroferricyanic acid, compounds of, with furfuraldehyde and bases (WAGENER and TOLLENS), A., i, 149.
Hydroferrocyanic acid, compounds of, with furfuraldehyde and bases (WAGENER and TOLLENS), A., i, 149.
2'-Hydrofluoranyldiphenylcarbiuol (ULLMANN and TSCHERNAIK), A., i, 102.
Hydrofluoric acid. See under Fluorine.
Hydrofluosilicic acid. See under Fluorine.
Hydrogels, difference between hydrates and, and modifications of (VAN BEMELEN), A., ii, 430.
Hydrogen, generator for (FORD), A., ii, 531.
 apparatus for the measurement of the volume of evolved (REBENSTORFF), A., ii, 487.
 anodic solution of, and its passivity (SACKUR), A., ii, 261.
 determination of the critical point of (OLSZEWSKI), A., ii, 7.
 and oxygen, relative densities of; lecture experiment (THIELE), A., ii, 661.
 expansion of (WITKOWSKI), A., ii, 7.
 diffusion of, through hot platinum (WINKELMANN), A., ii, 336.
 reducing action of (CHAPMAN and LAW), A., ii, 196.
 oxidation of, by micro-organisms (KASERER), A., ii, 113, 697.
 direct union of, with carbon at high temperatures (PRING and HUTTON), T., 1591; P., 260.
 action of, on carbon dioxide (GAUTIER), A., ii, 538.
 interaction of, with chlorine (BURGESS and CHAPMAN), T., 1399; P., 37.
 action of radium rays on mixtures of, with chlorine and with oxygen (JORISSEN and RINGER), A., ii, 515.
 combination of, with oxygen in contact with hot surfaces (BONE and WHEELER), A., ii, 434.

Hydrogen arsenide. See Arsenic trihydride.
 aurichloride (SCHMIDT), A., ii, 862.
 bromide. See under Bromine.
 chloride. See under Chlorine.
 cyanide. See under Cyanogen.
 fluoride. See under Fluorine.
 iodide. See under Iodine.
 peroxide, nitric oxide, and ozone, preparation of (FISCHER and MARX), A., ii, 845.
 formation of, by means of the Tesla discharge (FINDLAY), A., ii, 261.
 formation of, at high temperatures (NERNST), A., ii, 17.

Hydrogen peroxide, formation of, in the evaporation of water (SMITH), T., 481; P., 40.
 supposed radioactivity of (O. and A. DONY), A., ii, 644.
 action of, on bismuth salts (MOSER), A., ii, 618.
 interaction of, with potassium sulphate (FRIEND), T., 1092; P., 161.
 action of, on sulphuric acid solutions of diphenylamine (USCHAKOFF), A., i, 159.
 action of flour on (BREMER), A., ii, 587.
 action of, on phosphorus (WEYL), A., ii, 350.
 solutions, preservative action of sodium and calcium chlorides on (ALLAIN), A., ii, 663.
 action of chemical oxydases in presence of (BAUDRAN), A., ii, 18.
 stable 3 per cent, bactericidal and antiseptic influence of (SCHMIDT), A., ii, 698.
 use of, in separating the halogens (JANNASCH and ZIMMERMANN), A., ii, 194; (JANNASCH), A., ii, 894.
 estimation of (MATHEWSON and CALVIN), A., ii, 704.
 estimation of, in milk, and the preservation of milk by this substance (AMBERG), A., ii, 122.
 sulphide, formation of, in mineral waters (THOMANN), A., ii, 477.
 new laboratory method of preparing (WILSON), P., 312.
 generator for (FORD), A., ii, 531; (BROWNE and MEHLING), A., ii, 609.
 action of, on certain oxides (GAUTIER), A., ii, 548.
 oxides of (FROMM and DE SEIXAS PALMA), A., i, 819.
 estimation of, iodometrically (BRUNCK), A., ii, 799.

Hydrohämatomin (HESSE), A., i, 282.
Hydrols, reactions of some (FOSSE), A., i, 691; (FOSSE and ROBYN), A., i, 756; (FOSSE, ROBYN, and BAILLON), A., i, 976.
Hydrolysis. See under Affinity, chemical.
Hydrometer with a centigram scale (REBENSTORFF), A., ii, 423.
Hydrophthalic acids, influence of the position of the ethylene linking on the characters of (ABATI), A., i, 958, 959; (ABATI and CONTALDI), A., i, 959.
Hydropiperic acids, $\alpha\beta$ - and $\beta\gamma$, ethyl esters (VORLÄNDER and STRUNCK), A., i, 367.

Hydropiperonyloin and *iso***Hydropiperonyloin** (LAW), T., 1515; P., 237.

Hydrosalicyloin (LAW), T., 1516, 1526; P., 237.

Hydroscopoline aurichloride (SCHMIDT and GAZE), A., i, 104.

Hydrosols. See Colloidal solutions.

Hydrosulphides, organic, estimation of, volumetrically (KLASON and CARLSON), A., ii, 255.

Hydro-p-toluamide (GATTERMANN), A., i, 590.

Hydrovanilloin (LAW), T., 1516; P., 237.

Hydroxy-acids, synthesis of (NEUBERG and FEDERER), A., i, 805. action of alkaline copper solutions on the rotation of (GROSSMANN), A., ii, 823.

benzylidene and tolylidene derivatives of (ALBERDA VAN EKENSTEIN and BLANKSMA), A., i, 512.

aromatic, reduction of azo-derivatives of, by phenylhydrazine (PUXEDDU), A., i, 995.

Hydroxyamino-acids, polypeptides of (FISCHER and SUZUKI), A., i, 73.

Hydroxy-compounds, aromatic, use of methylene-blue for the estimation of sulphonic derivatives of (VAUBEL and BARTELT), A., ii, 207.

See also under the parent Substance.

Hydroxy-ketones. See Acyloins.

Hydroxyl, aromatic, acid function of (THIEL, SCHUMACHER, and ROEMER), A., i, 22.

compounds, optically active, action of alkaline uranyl salts on the rotatory power of (GROSSMANN), A., ii, 61.

group, substitution of negative groups by the, in ortho-substituted diazonium salts (NOELTING and BATTEGAY), A., i, 221.

groups, alkaline aqueous mercuric iodide as a reagent for (ROSENTHALER), A., i, 921.

Hydroxylamine and its salts (Ross), A., ii, 19.

reaction between β -naphthol, formaldehyde, and (BETTI), A., i, 653.

decomposition of, by potassium ferrocyanide (HOFMANN and ARNOLDI), A., i, 562.

platinocyanide and its hydrates (LEVY and SISSON), T., 127.

Hydroxylamine- $\alpha\beta$ -disulphonates and their decomposition and hydrolysis (HAGA), T., 240; P., 29.

Hydroxylaminesulphonic acids, new (RASCHIG), A., ii, 159.

Hydroxylamino-derivatives. See under the parent Substance.

Hyphomycetes, fermentative production of coumarin during development of certain (GOSIO), A., ii, 699.

Hypochlorite production. See Bleaching liquors.

Hypochlorous acid. See under Chlorine.

Hypophosphoric acid. See under Phosphorus.

Hyposulphurous acid and **Hyposulphites.** See under Sulphur.

Hystazarin mono- and di-methyl ethers (LAGODZINSKI), A., i, 82.

I.

Ice, latent heat of fusion of (LEDUC), A., ii, 70.

formula for the vapour pressure of, at low temperatures (SCHEEL), A., ii, 422.

density of (LEDUC), A., ii, 155.

l-Iditol, synthetical crystalline, and its hexa-acetyl derivative (BERTRAND and LANZENBERG), A., i, 728.

Ignition in a vacuum by means of the electric furnace (HAAGN), A., ii, 48.

Illicium anisatum or *I. verum*. See Star aniseed.

Ilmenite from British Central Africa, A., ii, 684.

Imide bromides and their decomposition (V. BRAUN and MÜLLER), A., i, 576. chlorides, action of potassium thiocyanate on (JOHNSON and MCCOLLUM), A., i, 768.

Imides, action of alkali hydroxides and alkyl oxides on unsaturated (PIUTTI), A., i, 657.

action of mixed organomagnesium compounds on (BÉIS), A., i, 884.

acid, silver derivatives of (LEY and SCHAEFER), A., ii, 327.

aromatic, formation of, from ketones

(PRUD'HOMME), A., i, 193, 866.

organic, complex compounds of (TSCHUGAEFF), A., i, 814.

Iminazole rings, resolution of (FISCHER and RÖMER), A., i, 539.

Imines, cyclic, the relations between functional (reactive) groups in remote positions in (BLAISE and HOUILLON), A., i, 692.

Imino-compounds, formation and reactions of (ATKINSON and THORPE), T., 1906; P., 281.

influence of other groups on the acidity of the imino-group in (WOOD), T., 1881; P., 271.

Imino-ethers, action of, on amino-esters (FINGER and SCHUPP), A., i, 901.

*endo***Iminotriazoles** (BUSCH and MEHRTEENS), A., i, 115.

- Incognitum**, phosphorescence spectrum of (MARC), A., ii, 360.
- Indaconitine**, pharmacology of (CASH and DUNSTAN), A., ii, 41.
- Indamines** and thiazines (GNEHM and SCHRÖTER), A., i, 211.
- Indaminethiosulphonic acid** (GNERM and KNECHT), A., i, 836.
- Indanediones**, Gabriel's conversion of phthalides into (EIBNER), A., i, 588.
- Indazyl derivatives**, 3-hydroxy-, formation of, from *o*-carboxylic azo-compounds (FREUNDLER), A., i, 544.
- o*-**Indazylbenzoic acid**, chloro-3-hydroxy-, lactone of (FREUNDLER), A., i, 544.
- 3-hydroxy-, and its ethyl ester and lactone (CARRE), A., i, 705.
- Indene**, condensation of, with aldehydes (THIELE and BÜHNER), A., i, 569.
- 3-hydroxy-. See 3-Hydridone.
- Indeneacetic acid** and its methyl ester, and α -hydroxy-, ethyl ester (THIELE and RÜDIGER), A., i, 586.
- Indene-1-acetic-acid-3- α hydroxyacetic acid**, methyl ester (THIELE and RÜDIGER), A., i, 587.
- Indenoxyalic acid**, methyl ester (THIELE and RÜDIGER), A., i, 586.
- Indiarubber**. See Caoutchouc.
- Indican**, detection of, in urine by means of alkali persulphates (ROSSI), A., ii, 910.
- Indicator**, new (WOODS), A., ii, 194. for strong acids and bases (FENTON), A., ii, 489.
- Indigo**, analysis of (BLOXAM), A., ii, 819; (RAWSON), A., ii, 820; (KNECHT), A., ii, 910.
- Indigotin**, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 534, 749; (BASLER CHEMISCHE FABRIK), A., i, 542; (BADISCHE ANILIN- & SODA-FABRIK), A., i, 695, 884.
- formation of, from quinoline (DECKER and KOPP), A., i, 180.
- molecular weight of (BECKMANN and GABEL), A., i, 900; (WICHELHAUS), A., i, 901; (VAUBEL), A., i, 989.
- oxidation product of (PERKIN), P., 198.
- addition of alkali to (BINZ), A., i, 749.
- estimation of, in commercial indigo and in indigo-yielding plants (BERGTHEIL and BRIGGS), A., ii, 818.
- Indigotin**, chloro-derivatives, preparation of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 89, 277.
- 6:6'-dinitro- (SCHWARZ), A., i, 90.
- Indigotin group**, sulphur analogues of the (FRIEDLÄNDER), A., i, 378.
- Indigo-yellow** (PERKIN), P., 199.
- Indium oxide**, volatility of (MEYER), A., ii, 30; (THIEL), A., ii, 169.
- Indole**, reaction for (KONTO), A., ii, 712.
- colour reactions of, with aromatic aldehydes and nitrites (STEEENSMA), A., ii, 315.
- estimation of (HERTER and FOSTER), A., ii, 134.
- separation of, from scatole and their estimation (HERTER and FOSTER), A., ii, 910.
- Indole**, 2-mono- and 2:3-di-chloro- (MAZZARA and BORGO), A., i, 304.
- Indole-3-aldehyde**, formation of, from tryptophan (ELLINGER), A., i, 696.
- Indole nucleus**, formation and decomposition of the, by the catalytic action of nickel (CARRASCO and PADOA), A., i, 695.
- Indolenine base**, new (GRGIN), A., i, 884.
- iso***Indolinones**, formation of (BÉIS), A., i, 884.
- Indoneacetic acids** (STOBBE and GOLÜCKE), A., i, 361.
- Indonephazine** and its phenylhydrazone (FISCHER and SCHINDLER), A., i, 610.
- Indophenol**, acetylated (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 702.
- Indophenosafranine** (*s*-phenosafranine) and its hydrochloride (BARBIER and SISLEY), A., i, 51, 989.
- Indoxyl**, preparation of (LILIENFELD), A., i, 695; (BADISCHE ANILIN- & SODA-FABRIK), A., i, 695, 883.
- and its homologues, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 534, 749; (BASLER CHEMISCHE FABRIK), A., i, 542.
- Indoxyl**, 6-nitro-, 1:3-diacetyl derivative of (SCHWARZ), A., i, 90.
- thio-. See Thionaphthen, 2-hydroxy-.
- Infants** with gastric diseases, lactase and sugar excretion in (LANGSTEIN and STEINITZ), A., ii, 187.
- Infusoria**, reactions of, to chemical and osmotic stimuli (ROBERTSON), A., ii, 105.
- Inks**, writing, examination of (MUNSON), A., ii, 405.
- Inorganic colloidal solutions**. See Colloidal solutions.
- salts, solubility of, in ethylene glycol (OECHSNER DE CONINCK), A., i, 2.

- Inorganic** substances, relation between temperature and depth of colour of certain (ROHLAND), A., ii, 409.
 molecular weights of (BECKMANN), A., ii, 845.
- Inositol**, detection of (MEILLÈRE), A., ii, 811.
- Insulators**. See under Electrochemistry.
- Internal friction**. See Viscosity.
- Intestinal** absorption, influence of diffusibility and solubility of lipoids on the rate of (KATZENELLENBOGEN), A., ii, 780.
 contents, variations in toxicity of the (CHARRIN and LE PLAY), A., ii, 292.
- epithelium, absorption of methylene-blue by the (SCHMIDT), A., ii, 694.
 gases of man (FRIES), A., ii, 690.
- juice, proteolytic enzymes of (ABDERHALDEN and TERUUCHI), A., ii, 873.
- worms, protective mechanism of (HAMILL), A., ii, 182.
- Intestine**, absorption of lecithin in the (SLOWTZOFF), A., ii, 101.
 nucleic acid of the (INOUE and KOTAKE), A., i, 55.
- Intestines**, movements of (CANNON and MURPHY), A., ii, 181.
 See also Duodenal juice and Cæcum.
- Invertase**, influence of light on, in the absence of oxygen (JÖDLBAUER and V. TAPPEINER), A., i, 917.
 influence of colloids on the secretion and action of (PANTANELLI), A., ii, 477.
 reversibility of, in Mucor, and pro-invertase (PANTANELLI), A., ii, 623.
- Invertebrates**, blood serum of. See Blood serum.
- Invertin**, action of, in a heterogeneous medium (HENRI), A., i, 327.
- Iodic acid** and **Iodides**. See under Iodine.
- Iodine**, fluorescence, magnetic rotation, and temperature emission spectra of the vapour of (WOOD), A., ii, 714.
 electrochemical equivalent of (GALLO), A., ii, 278.
 rate of the reaction between arsenious acid and, in acid solution; rate of the reverse reaction; and the equilibrium between them (ROEBUCK), A., ii, 76.
 reaction of, with isobutylene (POGORŽELSKY), A., i, 129.
 reaction of, with chlorine peroxide (BRAY), A., ii, 278.
 action of, on mercury sulphates (BRÜCKNER), A., ii, 613.
- Iodine** as a cryoscopic solvent (TIMMERMANS), A., ii, 429.
 masking of, in presence of saccharine matters (GRÉLOT), A., ii, 709.
 mixtures of, with bromine and chlorine (MEERUM TERWOGT), A., ii, 15.
 multivalent, derivatives of (WERNER), T., 1625; P., 258.
 solutions, modified method for standardising (METZL), A., ii, 194; (BRUHNS), A., ii, 577.
- Iodine fluoride** (PRIDEAUX), T., 316; P., 19.
- Hydroiodic acid** (*hydrogen iodide*), rapid preparation of solutions of (BODROUX), A., ii, 156.
- Iodides**, detection of, in the dry way (MERK), A., ii, 489.
 estimation of, volumetrically, in presence of chlorine and bromine ions (RUPP and HORN), A., ii, 895.
- Iodine pentoxide**, action of acetylene on (JAUBERT; GAUTIER), A., ii, 125; (LÉVY and PÉCOUL), A., ii, 197.
- Iodic acid** (GROSCHUFF), A., ii, 16.
- Iodine**, estimation of, in aristols (CORMIMBOEUF), A., ii, 122.
 estimation of, in antiseptic soap (SEIDELL), A., ii, 252.
 See also Halogens.
- Iodine oxygen compounds**, electrochemistry of the (BRUNNER), A., ii, 723.
- Iodo-derivatives**, organic, action of chlorine on (WERNER), T., 1625; P., 258.
- Iodoform**, autocatalysis and decomposition of (SZILARD), A., ii, 425.
 decomposition of, dissolved in chloroform by diffused daylight and by radium rays (JORISSEN and RINGER), A.; i, 475.
 bromoform, and chloroform, comparison of the decomposition of, under the influence of light (SCHOORL and VAN DEN BERG), A., i, 474.
- Iodohydrins**, aromatic, action of silver nitrate on (TIFFENEAU), A., i, 966.
- Iodopiperin** (HANTZSCH and CALDWELL), A., i, 617; (MEISENHEIMER and SCHWARZ), A., i, 618.
- Iodospongion** (SCOTT), A., i, 999.
- Ionic velocities**, **Ions**, and **Ionisation**. See under Electrochemistry.
- Ionium**, phosphorescence spectrum of (MARC), A., ii, 360.
- ψ-Ionone hydrate and an isomeride, isolation of (COULIN), A., i, 869.
- 2-Iazole. See 2-Styrylquinoline.
- Iridium**, influence of very strong electromagnetic fields on the spark spectra of (PURVIS), A., ii, 421.
 boiling of (MOISSAN), A., ii, 175.

- Iridium alloy** with platinum, action of hot sulphuric acid on, in presence of ammonium sulphate (DELÉPINE), A., ii, 289.
- Iridium potassium sulphate** (DELÉPINE), A., ii, 551.
- Iris**, action of alkaloids on the (ANDERSON), A., ii, 104.
- Iron**, metallic, found at Magdeburg in 1831 (RINNE), A., ii, 867.
- quantity of, in spinach (SERGER), A., ii, 574.
- chemistry of (V. JÜPTNER), A., ii, 614.
- electrolytic deposition of, from aqueous solutions of its chloride and sulphate (RYSS and BOGOMOLNY), A., ii, 856.
- measurement of the wave-lengths of the spectrum of, for the establishment of a system of spectroscopic standards (FABRY and BUISSON), A., ii, 641.
- anodic attack of, by stray currents in the earth and the passivity of iron (HABER and GOLDSCHMIDT), A., ii, 213.
- boiling and distillation of (MOISSAN), A., ii, 232.
- crystallography of (OSMOND and CARTAUD), A., ii, 545.
- susceptibility of, in colloidal solution (BURTON and PHILLIPS), A., ii, 421.
- oxidation of, lecture experiment (KÜSPERT), A., ii, 661.
- the rusting of (MOODY), T., 720; P., 101; (NANCE), P., 143.
- action of calcium on (QUASEBART), A., ii, 229; (STOCKEM), A., ii, 285; (WATTS), A., ii, 759.
- action of silicon chloride on (VIGOUROUX), A., ii, 32.
- electro-deposition of copper on (BROWN and MATHERS), A., ii, 214.
- influence of phosphorus on the solubility of carbon in (FETTWEIS), A., ii, 232.
- "temper" carbon and graphite in (WÜST and GEIGER), A., ii, 88.
- in living tissues (MOUNEYRAT), A., ii, 582.
- Iron alloys**, estimation of carbon in (JABOULAY), A., ii, 802.
- with calcium (STOCKEM), A., ii, 285.
- with carbon, equilibrium diagram of (CHARPY), A., ii, 31.
- of high carbon content (WÜST), A., ii, 232.
- with copper (PFEIFFER), A., ii, 358.
- with manganese. See Ferromanganese and Spiegeleisen.
- with silicon (GUERTLER and TAMMANN), A., ii, 32; (VIGOUROUX), A., ii, 33.
- with tungsten. See Ferrotungstens.
- Iron compounds** with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 630.
- with molybdenum (VIGOUROUX), A., ii, 364.
- with sulphur (TREITSCHKE and TAMMANN), A., ii, 547.
- with thiocarbamide (ROSENHEIM and MEYER), A., i, 408.
- Iron salts**, hydrolysis of, in presence of iodides and iodates (MOODY), A., ii, 706.
- oxidation and reduction in the electrolysis of (KARAOGLANOFF), A., ii, 145.
- reaction of, with sodium sulphide (DE KONINCK), A., ii, 397.
- Iron nitride** (WHITE and KIRSCHBRAUN), A., ii, 853.
- sodium silicate, $\text{Na}_2\text{Fe}_2\text{Si}_4\text{O}_{12}$ (WEYBERG), A., ii, 91.
- silicides, formation of, in the electric furnace (VANZETTI), A., ii, 614.
- Ferric chloride**, colloidal, electrical conductivity of (MALFITANO), A., ii, 647.
- behaviour of, in the zinc "reductor" (RANDALL), A., ii, 308.
- hydroxide, insolubility of, in ammoniacal solutions (BAXTER and HUBBARD), A., ii, 902.
- artificial crystals of, pseudomorphous with ferric sulphate (VESTERBERG), A., ii, 547.
- new magneto-optical properties of colloidal solutions of (COTTON and MOUTON), A., ii, 146.
- Graham's colloidal product of prolonged washing of (DUCLAUX), A., ii, 677.
- nature of pseudo-solutions of (GIOLITTI; GIOLITTI and BATTISTI), A., ii, 857.
- hydroxychloride, colloidal, composition of, in relation to the concentration of hydrochloric acid in the containing fluid (MALFITANO), A., ii, 33.
- variations in the size of the granules of (MALFITANO), A., ii, 450.
- osmotic pressure of (MALFITANO), A., ii, 526.
- oxide, diaphragms of porous (MALLET and GUYE), A., ii, 649.
- anhydrous, artificial crystals of, pseudomorphous with ferric sulphate (VESTERBERG), A., ii, 547.

Iron:—

Ferric sulphate, $\text{Fe}''' \text{H}(\text{SO}_4)_2 \cdot 4\text{H}_2\text{O}$ or $\text{Fe}_2\text{O}_3 \cdot 4\text{SO}_3 \cdot 9\text{H}_2\text{O}$, formation of (KOMAR), A., ii, 170.

selenium caesium and rubidium alums (RONCAGLIOLO), A., ii, 232.

Ferrous salts, estimation of (MATTHEWSON and CALVIN), A., ii, 704.

chloride, oxidation of, by water with evolution of hydrogen (PRECHT), A., ii, 91.

oxide, reduction of (SCHENCK), A., ii, 363.

sulphate, oxidation of organic substances by, in presence of animal extracts, and the moderating action of catalase on (BATELLI and STERN), A., ii, 107.

as manure (VOELCKER; KATAYAMA), A., ii, 888.

Iron organic compounds:—

Iron carbonyl, physical and chemical properties of (DEWAR and JONES), A., ii, 89.

Diferrononacarbonyl (DEWAR and JONES), A., ii, 90.

Iron cyanogen compounds, blue, and the cause of their colour (HOFMANN and RESENSCHECK), A., i, 75.

reduction of (KOHN), A., i, 562.

Ferric ammonium ferrocyanide (HOFMANN and ARNOLDI), A., i, 562.

Iron mineral, formation of, by the decomposition of glauconite (CAYEUX), A., ii, 368.

Iron ores from British Central Africa, A., ii, 685.

containing alumina, estimation of silica in (DEAN), A., ii, 630.

and slags, analysis of (MACRI), A., ii, 495.

Iron pyrites. See Pyrites.

Cast iron, effect of certain elements on the structure of (HIORNS), A., ii, 169.

influence of foreign elements on the separation of graphite from (WÜST, KREITEN, and PÜTZ), A., ii, 362.

Steel, estimation of carbon in (AUPPERLE; JOHNSON), A., ii, 630.

use of ammonium persulphate in the estimation of chromium in (WALTERS), A., ii, 198.

estimation of vanadium in (SMITH), A., ii, 398.

Steels, variation of the electrical resistance of, near the transition points (FOURNEL), A., ii, 646.

determination of the transition points of, by the electrical resistance method (FOURNEL), A., ii, 546.

Iron:—

Steels, estimation of manganese in (BRICHANT), A., ii, 397.

See also Copper steels and Vanadium steel.

Iron (in general) detection, estimation, and separation:—

diphenylcarbazide as indicator in the titration of, with dichromate (BRANDT), A., ii, 309.

sources of error in the titration of, with permanganate (KINDER), A., ii, 582.

detection and estimation of minute quantities of (MOUNEYRAT), A., ii, 495.

estimation of carbon in (AUPPERLE; JOHNSON), A., ii, 630.

new apparatus for the estimation of carbon in (KLEINE), A., ii, 896.

estimation of chromium and manganese in (KLEINE), A., i, 494.

estimation of manganese in (BRICHANT), A., ii, 397; (KETTREIBER), A., ii, 494.

estimation of sulphur in (MCFARLANE and GREGORY), A., ii, 390.

metallic, estimation of, in reduced iron (CORMIMBOEUF and GROSMAN), A., ii, 54.

estimation of, in tissues (MARRIOTT and WOLF), A., ii, 582.

and manganese, separation of, from cobalt and nickel (FUNK), A., ii, 806.

separation of, from cobalt, manganese, nickel, and zinc by the acetate process (FUNK), A., ii, 398.

separation of, from cobalt, manganese, nickel, and zinc by the formate process (FUNK), A., ii, 707.

separation of, from zinc by means of ammonia (FUNK), A., ii, 54.

Irrigating waters. See under Water.

Isatin and 1-hydroxy-, phenylhydrazone and osazone derivatives of (HELLER), A., i, 586.

Isatis tinctoria. See Woad.

Isodimorphism in the alkali series (TUTTON), T., 1059; P., 153.

Isomerism and tautomerism (MICHAEL and MURPHY), A., i, 179.

dynamic, studies in (LOWRY), T., 1033; P., 70; (LOWRY and MAGSON), T., 1042; P., 145.

Isomorphism (HERBETTE), A., i, 929.

and the law of Mitscherlich (WALLERANT), A., ii, 530.

theory of, as based on experiments on the regular growths of crystals of one substance on those of another (BARKER), T., 1120; P., 111, 112.

Isomorphism, two remarkable cases of (COPAUX), A., ii, 549.

Isorropesis, a new type of oscillation (STEWART and BALY), T., 498, 618; P., 34, 85; (BALY and STEWART), T., 503; P., 34; (BALY, EDWARDS, and STEWART), T., 514; P., 35.

Itaconic anhydride, action of ammonia on (ROSSI), A., i, 138.

Ivy plant, poison. See *Rhus Toxicodendron*.

J.

Jatropha Curcas, wax of the bark of (SACK), A., ii, 386.

Jecorin (MEINERTZ), A., i, 124; (SIEGFRIED and MARK), A., i, 325; (WALDVOGEL and TINTEMANN), A., i, 469; (MAYER), A., i, 915.

Jelly-fish, effects of magnesium and calcium on the rhythmical contractions of (LOER), A., ii, 561.

Jervine and ψ -Jervine and their additive salts (BREDEMANN), A., ii, 506.

Juglone (*5-hydroxy-1:4-naphthaquinone*), occurrence of, in Juglandaceæ (BRISSEMORET and COMBES), A., ii, 118.

Juniper, empyreumatic oil of, preparation and distinctive properties of (PÉPIN), A., ii, 633.

reactions of (PÉPIN), A., ii, 807.

Juniperus phœnicea, volatile oil of (RODIE), A., i, 971.

K.

Kaempferitrin (PERKIN), P., 199.

Kaempferol from Natal indigo plants (PERKIN), P., 199.

Kamala, preparation of rottlerin from (TELLE), A., i, 973.

Karité butter (JEAN), A., ii, 589.

Kephalin, fatty acids of (COUSIN), A., i, 725.

Keratin from goose feathers, monoamino-acids of (ABDERHALDEN and LE COUNT), A., i, 56.

from horse-hair, monoamino-acids of (ABDERHALDEN and WELLS), A., i, 55.

Kertschenite from Russia (POPOFF), A., ii, 236.

Ketens (STAUDINGER and KLEVER), A., i, 234; (STAUDINGER), A., i, 861.

4-Keto-3-acetyl-5-benzylidene-2-methylhydrofuran, action of phenylhydrazone on (RUHEMANN), T., 687; P., 89.

1-Keto-2-acetyl-4-phenyl-3-methylcyclopentadiene, 5-hydroxy-. See Acetyl-oxalylphenylmethylpropene.

Ketoacetylphenylparacone and its *m*- and *p*-nitro-derivatives and phenylhydrazone, and the action of aromatic bases on (RUHEMANN), T., 1240; P., 198.

Keto-alkyl- and -aryl-dihydroquinazolines, 6-bromo-, preparation of, from 5-bromo-2-aminobenzoic acid and its derivatives (BOGERT and HAND), A., i, 208.

5-Keto-3-anilino-1:1-dimethyl- Δ^3 -tetrahydrobenzene, *N*-acetyl derivative, and its semicarbazone (HAAS), T., 203.

Ketobenzylideneacetylphenylparacone (RUHEMANN), T., 1240.

3-Ketocamphyl-1:2:4-heptatriazine (TINGLE and ROBINSON), A., i, 902.

2-Keto-4:5-camphyl-1-methylpyrimidine-6-carboxylic acid (TINGLE and ROBINSON), A., i, 903.

4-Keto-3-carbamido-2-methyldihydroquinazoline, 5-nitro-, and its diacetyl derivative (BOGERT and SEIL), A., i, 713.

Ketocarboxylic acids, cyclic, esters, syntheses with (KÖTZ and HESSE), A., i, 88; (KÖTZ and MICHELS), A., i, 666; (KÖTZ and KAYSER), A., i, 667; (KÖTZ, BIEBER, and SCHÜLER), A., i, 668.

Ketodihydrodicyclopentadiene, oximes of (WIELAND), A., i, 418.

4-Keto-3:4-dihydro- β -quinacridine. See β -Quinacridine, 4 hydroxy-.

4-Ketodihydroquinazoline, 5-amino-, and its acyl derivatives, additive salts and dibromo- (BOGERT and CHAMBERS), A., i, 388.

3-Keto-1:1-dimethylcyclohexane (CROSSLEY and RENOUF), P., 303.

3-Keto-1:1-dimethyl- Δ^4 -cyclohexene (3-keto-1:1-dimethyl- Δ^4 -tetrahydrobenzene) (CROSSLEY and RENOUF), P., 303.

5-chloro-, action of reducing agents on (CROSSLEY and RENOUF), P., 302. condensation of, with ammonia, aniline, and *p*-toluidine (HAAS), T., 187; P., 17.

condensation of, with *m*- and *p*-phenylenediamines (HAAS), T., 387; P., 63.

5-Keto-1:1-dimethyl- Δ^3 -cyclohexene, 3-amino-, *N*-acetyl derivative of, and its semicarbazone (HAAS), T., 193.

β -Keto-*o*-diphenylpropane, α -cyano-, formation of (ATKINSON and THORPE), T., 1931.

6-Keto-2-ethoxy-4-benzenesulphonylpiperazine (JOHNSON and McCOLLUM), A., i, 157.

- Ketohexahydrobenzoic acids.** See *cyclo-Hexanonecarboxylic acids.*
- Ketoindene.** See *Indone.*
- Ketolactones,** unsaturated, formation of, from $\alpha\beta$ -diacylcarboxylic esters (BORSCHE and FELS), A., i, 508.
- 6-Keto-1-methyl-1:2-dihydropyridine-3-carboxylic acid** and its methyl ester (MEYER), A., i, 108.
- 4-Keto-2-methyldihydroquinazoline**, 5-amino-, and its salts (BOGERT and CHAMBERS), A., i, 389.
- 6-nitro-, syntheses of, from 5-nitro-acetylanthranil and primary amines, and 6-nitro-3-amino-, and 3-ethyl derivative (BOGERT and COOK), A., i, 988.
- 5-nitro-3-amino-, and its salts, and diacetyl and bromo-derivatives (BOGERT and SEIL), A., i, 712.
- 4-Keto-8-methyldihydroquinazoline** and its salts (FİNDEKLEE), A., i, 21.
- 2-Keto-1-methyl-1:2-dihydroquinoxaline** and its 3-carboxylic acid and its methylamide (KÜHLING and KASELITZ), A., i, 465.
- Ketone**, $C_8H_{12}O$, and its oxime, from the condensation of tiglic acid with acetone (DAUTWITZ), A., i, 803.
- $C_{10}H_{10}O_3$ and $C_{10}H_{12}O_2$, from isosafrole oxide and anethole oxide (HOERING), A., i, 951.
- $C_{15}H_{19}O_4N_3$, semicarbazone of, from ethyl benzoylacetonate and semicarbazide (BORSCHE and FELS), A., i, 510.
- Ketones**, preparation of (DARZENS), A., i, 137; (HAEHN), A., i, 400; (MARQUIS), A., i, 434; (FOSSE and ROBYN), A., i, 976.
- preparation of, and condensation of, with ethyl α -chloropropionate (DARZENS), A., i, 62.
- obtained by means of *n*-valeric acid (LAYRAUD), A., i, 432.
- preparation of, from alcohols (LANG), A., i, 627.
- synthesis of, from *as*-disubstituted ethylene glycols and their ethers (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBBERN-SIBBERS, and RIEBEL), A., i, 581.
- from $\alpha\beta$ disubstituted glycidic esters (DARZENS), A., i, 137.
- from $\alpha\beta$ -trisubstituted glycidic esters, synthesis of (DARZENS), A., i, 62.
- formation of, from secondary-tertiary α -glycols (TIFFENEAU and DORLEN-COURT), A., i, 724.
- condensation of, with cyanoacetic and malonic acids (KNOEVENAGEL), A., i, 482.
- Ketones**, action of hydrogen cyanide on (ULTÉE), A., i, 5, 479; (BUCHERER and GROLÉE), A., 405.
- conversion of, into bases (WALLACH, HÜTTNER, and ALTBURG), A., i, 160.
- bispyrazolone derivatives, action of phosphorus oxychloride on (MICHAELIS and ZILG), A., i, 216.
- phenylhydrazones of, relation between the absorption spectra and chemical constitution of (BALY and TUCK), T., 982; P., 142.
- stable compounds of, with hyposulphites (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 400.
- thio-derivatives of (FROMM and ZIERSCH), A., i, 930.
- and aldehydes, thio-compounds from (COMPAGNIE MORANA), A., i, 23.
- of the type $RCO\cdot CH_2R$, preparation of (BOUVEAULT and LOCQUIN), A., i, 783.
- of the series $CO(C_nH_{2n-7})(C_nH_{2n+1})$, action of ammonium cyanide on (JAWELOFF), A., i, 426.
- of the series $CO(C_nH_{2n-7})_2$, behaviour of ammonium cyanide with (WIEKMANN), A., i, 433.
- aromatic, conversion of, into imides (PRUD'HOMME), A., i, 193, 866.
- thio-derivatives of, and their desulphurisation (MANCHOT, ZAHN, and KRÄNZLEIN), A., i, 752.
- cyclic, action of sodamide on (SEMMLER), A., i, 681.
- saturated, action of ammonium cyanide on (V. GULEWITSCH and WASMUS), A., i, 409.
- estimation of the carbonyl group in (SMITH), A., ii, 312.
- See also Acyloins and Diketones.
- Ketone-cyanohydrins** (ULTÉE), A., i, 5, 479; (BUCHERER and GROLÉE), A., i, 405.
- Ketone dyes** (NOELTING and KADIERA), A., i, 593.
- Ketonic acid**, $C_{26}H_{42}O_3$, and its bromo-derivative and oxime, from the oxidation of cholestenone (WINDAUS), A., i, 580.
- Ketonic acid**, esters, synthesis of, by Grignard's reaction (MEYER and TÖGEL), A., i, 758.
- δ -Ketonic acids**, new derivatives of (GUARESCHI), A., i, 800.
- Ketonic compounds**, action of phenylpropiol chloride on (RUHEMANN), T., 682; P., 89.
- Ketonic and acid groups**, influence of the juxtaposition of, in the same molecule (SIMON), A., i, 404.

- a-Keto- γ -phenylbutyric acid** and its oxime (KNOOP and HOESSLI), A., i, 431.
- 4-Keto-5-phenylcarbamidodihydroquinazoline** (BOGERT and CHAMBERS), A., i, 389.
- 4-Keto-2-phenyl-1:4-dihydroquinazoline** (FINGER and SCHUPP), A., i, 901.
- 2-Keto-1-phenyl-1:2-dihydroquinoxaline** and its 3-carboxylic acid (KÜHLING and KASELITZ), A., i, 463.
- 4-Keto-3-phenylhydrazino-2-methylhydroquinazoline**, 5-nitro-, phenylhydrazone of (BOGERT and SEIL), A., i, 713.
- Ketophenylhydrazinopyrazolone** and its carboxylic acid and their bromo-derivatives (EIBNER and LAUE), A., i, 613.
- 7-Keto-2-phenyl-4-methyl-1:4-benzopyran**, 5-*o*-*m*-*p*-tetrahydroxy-, and its hydrochloride (BÜLOW and SCHMID), A., i, 598.
- 4-Keto-3-phenyl-2-methylhydroquinazoline**, 6-nitro- (BOGERT and COOK), A., i, 988.
- Ketophenylparacophenone** and the action of aromatic bases on (RUHEMANN), T., 1243; P., 198.
- Ketophenylpyrazoloneazobenzene carboxylic acid** and its sodium derivatives (EIBNER and LAUE), A., i, 614.
- Ketoquinazoline** derivatives, synthesis of (v. PAWLEWSKI), A., i, 542.
- 4-Keto-2-thion-1- and -3-alkyl-1:2:3:4-tetrahydroquinazolines**, synthesis of (v. PAWLEWSKI), A., i, 542.
- 5-Keto-3-*p*-toluidino-1:1-dimethyl- Δ^3 -tetrahydrobenzene, *N*-acetyl derivative, and its semicarbazone (HAAS), T., 197.**
- 2-Keto-1-*p*-tolyl-6- and -7-methyl-1:2-dihydroquinoxalines** and their 3-carboxylic acids (KÜHLING and KASELITZ), A., i, 464.
- 2-Keto-3-*p*-tolyl-6-methyl-1:2:3:4-tetrahydroquinazoline** and its dicarbamide derivative (v. WALTHER and BAMBERG), A., i, 387.
- 7-Keto-2-*o*-*m*-*p*-trimethoxyphenyl-4-methyl-1:4-benzopyran**, 5-hydroxy-, and its additive salts and oxime and phenylhydrazone (BÜLOW and SCHMID), A., i, 598.
- 4-Keto-1:1:3-trimethylpentamethylene-2:3-dicarboxylic acid**. See 1:1:3-Tri-methyl-4-cyclopentanone-2:3-dicarboxylic acid.
- Kidney**, excretion and re-absorption in the (BASLER), A., ii, 468.
- nucleic acid of the (MANDEL and LEVENE), A., i, 468.
- Kidney**, the "protagon" of the (PANZER), A., ii, 783.
- frog's, secretion by the (CULLIS), A., ii, 468; (BAINBRIDGE and BEDDARD), A., ii, 469, 563.
- Kinetics**. See under Affinity, chemical.
- King crab**. See Limulus.
- Ki-Urushi**. See Lacquer, Japan.
- Kleinite**, a hexagonal mercury oxychloride, from Texas (SACHS), A., ii, 176.
- composition of (SACHS), A., ii, 369.
- Küster apparatus**, explosion of (HARPF and FLEISSNER; KÜSTER), A., ii, 850.
- Kynosine** in urine (KUTSCHER and LOHMAN), A., ii, 875.
- Kynurine**. See Quinoline, 4-hydroxy.
- Kyrines** (SKRAUP and ZWERGER), A., i, 123; (SIEGFRIED), A., i, 777.
- L.**
- Lacquer**, Japan (TSCHIRCH and STEVENS), A., i, 31.
- Lactase**, hydrolytic activity of (PORCHER), A., ii, 57.
- Lactic acid** (*i*-ethylidene lactic acid; α -hydroxypropionic acid), resolution of, by morphine (IRVINE), T., 935; P., 159.
- action of, on casein and paracasein (LAXA), A., i, 123.
- in intermediary metabolism (MANDEL and LUSK), A., ii, 463.
- Lactic acid**, α -thio- (FRIEDMANN and BAER), A., i, 802.
- d-Lactic acid** (*sarcolactic acid*) in the blood, urine, and cerebro-spinal fluid in eclampsia (FÜTH and LOCKEMANN; ZWEIFEL), A., ii, 472.
- formation of, by the autolysis of animal organs (MOCHIZUKI and ARIMA), A., ii, 873.
- l-Lactic acid** and its lactide (JUNG-FLEISCH and GODCHOT), A., i, 333.
- asymmetric synthesis of (MCKENZIE and WREN), T., 689; P., 107.
- Lactic acid bacteria**. See under Bacteria.
- Lactic acid fermentation**. See Fermentation.
- Lactones**, formation of, from $\alpha\alpha$ -dimethyl- $\beta\gamma$ -unsaturated acids (BLAISE and COURTOY), A., i, 793.
- iodo-, formation of (BOUGAULT) A., i, 848.
- Lactose** (*milk sugar*), hydrolytic activity of lactase towards (PORCHER), A., ii, 57.
- test for sucrose in (LEFFMANN), A., ii, 586; (GAWALOWSKI), A., ii, 811.

- Lactose**, unification of the methods of estimating, in milk (PATEIN), A., ii, 904.
- α -Lactylcarbamide.** See α -Methyl-hydantoin.
- Levulic acid** (β -acetylpropionic acid, acetylacetone), estimation of, iodometrically (SAVARÈ), A., ii, 907.
- Levulose** (d -fructose), action of *as-*phenylethylhydrazine on (OFNER), A., i, 385.
- osazone test for, as influenced by dilution and by the presence of other sugars (SHERMAN and WILLIAMS), A., ii, 498.
- and dextrose, estimation of (KICKTON), A., ii, 255.
- Levulosephenylhydrazone** (LANDRIEU), A., ii, 270.
- Lamp** without flame, phenomenon of a (MATIGNON and TRANNOY), A., ii, 427.
- Lamps**, electric. See under Electrochemistry.
- Lampblack**, production of, from acetylene (FRANK), A., ii, 21.
- Lanthanum**, spectrum of (WOLFF), A., ii, 409.
- neodymium, and praseodymium chlorides, physiological action of (DRYFUSS and WOLF), A., ii, 473.
- Lanthanum chloride** (MATIGNON), A., ii, 675.
- Lard**, detection of beef fat in (DUNLOP), A., ii, 502.
- Latent heat**. See under Thermochemistry.
- Laumontite** from Brazil (HUSSAK), A., ii, 555.
- Laurolene and isoLaurolene**, preparation and reactions of (CROSSLEY and RENOUF), T., 37.
- densities, magnetic rotations, and refractive powers of (PERKIN), T., 33.
- isoLaurolene**, synthesis of (BLANC), A., i, 523.
- Lauronic acid**, amino-, derivatives of (NOYES and TAVEAU), A., i, 397.
- isoLauronolic acid**, synthesis of (BLANC), A., i, 523.
- Lead**, radioactive, from pitchblende (DANYSZ), A., ii, 644.
- mixtures of, with sulphur (FRIEDRICH and LEROUX), A., ii, 355; (WEIDMANN), A., ii, 755.
- Lead alloys** with aluminium, determination of the melting point of, by thermo-electric pyrometers (PÉCHEUX), A., ii, 758.
- with arsenic (FRIEDRICH), A., ii, 230.
- Lead alloys** with cadmium and zinc (NOVAK), A., ii, 26.
- with calcium (HACKSPILL), A., ii, 671.
- with silver (FRIEDRICH and PUCHTA), A., ii, 541.
- with sodium (MATHEWSON), A., ii, 666.
- with tin, estimation of lead in (GIUSTI), A., ii, 581.
- Lead compounds** with thiocarbamide (ROSENHEIM and MEYER), A., i, 408.
- Lead carbonate** and oxide, identification of solid phases between (HAWLEY), A., ii, 854.
- chloride, compounds of, with potassium chloride (LORENZ and RUCKSTUHL), A., ii, 853.
- chromates (Cox), A., ii, 757.
- haloids, formation of mixed crystals from fused mixtures of (MÖNKE-MEYER), A., ii, 604.
- oxide, modifications of (RUER), A., ii, 755.
- peroxide, new method of preparing (FRIDERICH, MALLET, and GUYE), A., ii, 756.
- electrolytic preparation of, from lead sulphide (STEIGELMANN), A., ii, 854.
- as anode in the electrolytic oxidation of chromium sulphate to chromic acid (MÜLLER and SOLLER), A., ii, 66.
- Plumbates**, constitution of certain (BELLUCCI and PARRAVANO), A., ii, 87.
- Lead oxychlorides** (RUER), A., ii, 542.
- aluminium phosphate. See Plumbogummite.
- pyrophosphates (PAHL), A., ii, 87.
- sulphate, compound of, with stannic sulphate (WEINLAND and KÜHL), A., ii, 762.
- sulphide. See Galena.
- Lead organic salts**, reactions involved in the formation of (WHITE; WHITE and NELSON), A., i, 229.
- Lead**, detection and estimation of, in water (KÜHN), A., ii, 493.
- electrolytic precipitation of, from acetate solutions (SNOWDON), A., ii, 755.
- estimation of (MAYER; SASSE), A., ii, 581.
- estimation of, volumetrically, as iodate (MOSER; RUPP), A., ii, 198.
- estimation of, in tin-lead alloys (GIUSTI), A., ii, 581.
- Lead chamber process**. See Sulphuric acid under Sulphur.
- Lead matte** (WEIDMANN), A., ii, 755.

- Lead mineral**, argentiferous, from Rosseto, Elba (TARUGI and CALAMAI), A., ii, 620.
- Leaf sap** of annual plants, variations in phosphoric acid and nitrogen in the (ANDRÉ), A., ii, 246.
- Leaves** of *Acer Negundo*, migration in the (SCHULTZE), A., ii, 192.
- variation of the nitrogen in (ANDRÉ), A., ii, 192.
- formation of anthocyanin in, under the influence of the bite of an insect (MIRANDE; GAUTIER), A., ii, 884.
- fallen, nitrogen fixation by (HORN-BERGER), A., ii, 47.
- Lecithin**, proportion of, in egg-yolk (MANASSE), A., ii, 781.
- occurrence of, in faeces (LONG), A., ii, 637.
- occurrence of, in milk (SIEGFELD), A., ii, 204.
- amount of, in milk (KOCHE), A., ii, 467.
- behaviour of, to the lipolytic ferments (SCHUMOFF-SIMANOWSKI and SIEBER), A., ii, 871.
- action of ricin on (PASCUCCI), A., ii, 96.
- action of, on animal metabolism (SLOWTZOFF), A., ii, 779.
- absorption of, in the intestine (SLOWTZOFF), A., ii, 101.
- brain, fatty acids of (COUSIN), A., i, 330.
- natural, optical antipodes of (MAYER), A., i, 919.
- Lecithins**, composition of (WINTGEN and KELLER), A., i, 331.
- in plant tissues (STANĚK), A., ii, 700.
- vegetable (WINTERSTEIN and HIESSTAND), A., i, 478.
- estimation of (KOCHE and WOODS), A., ii, 136.
- Lecithin-dextrose** and its osazone (MAYER), A., i, 915.
- Legumin**, monoamino-acids of (ABDERHALDEN and BABKIN), A., i, 546.
- Lemon-grass oil** from Montserrat, A., i, 298.
- Lemon juice**, composition of (LÜHRIG), A., ii, 482; (BEYTHIEN, BOHRISCH, and HEMPEL; V. KÜTTNER and ULRICH), A., ii, 573.
- Lemons**, extracts and oils of, estimation of citral in (CHACE), A., ii, 906.
- oil of, indirect estimation of aldehydes in (BERTÉ), A., ii, 132.
- Lentil husks**, food value and digestibility of (HONCAMP), A., ii, 701.
- Lepidomelane** from Montreal (HARRINGTON), A., ii, 867.
- Lepidoptera**, assimilation of carbon dioxide by chrysalides of (v. LINDEM), A., ii, 95.
- Leptochlorites** from Moravia (KRETSCHMER), A., ii, 458.
- Letter of condolence** to Madame Curie, P., 125.
- Leucemia** and chloroma (GULLAND and GOODALL), A., ii, 566.
- excretion of amino-acids in (LIPSTEIN), A., ii, 109.
- myogenous, influence of X-rays on the blood in (WILLIAMS), A., ii, 378.
- Leucine**, new synthesis of a, and its ethyl ester and its benzoyl derivative (BOUVEAULT and LOCQUIN), A., i, 938.
- Leucine** (α -amino-n-hexoic acid), resolution of, into its optically active components by means of its formyl derivative (FISCHER and WARBURG), A., i, 72.
- detection of small quantities of (LIPPICH), A., i, 813.
- l*-**Leucine anhydride** (FISCHER), A., i, 810.
- Leucine esters**, decomposition of, by the pancreatic enzyme (WARBURG), A., ii, 691.
- Leucines**, true nature of, obtained by Schützenberger in the decomposition of protein matter (HUGOUNENQ and MOREL), A., i, 719.
- Leucocyanin** (MOLISCH), A., ii, 118.
- Leucocytes** in milk (SAVAGE), A., ii, 298.
- iodine-staining granules of (HABERSHON), A., ii, 96.
- iodine reaction in (BARNICOT), A., ii, 558.
- Leucomethylene-blue**, amino- (GNEHM and SCHRÖTER), A., i, 212.
- Leucyl-d-alanine** and its anhydride (FISCHER), A., i, 810.
- l*-**Leucylglycine** and its anhydride (FISCHER), A., i, 809.
- dl*-**Leucyl-glycine** and β -glycylglycine, decomposition of, in the organism of rabbits and dogs (ABDERHALDEN and KAUTZSCH), A., ii, 778.
- Leucylglycylglycines** (FISCHER), A., i, 145, 809.
- l*-**Leucyl-l-leucine** and its hydrochloride and copper salt (FISCHER), A., i, 810.
- Lichens**, constituents of (HESSE), A., i, 280.
- carbohydrates from (TOLLENS), A., i, 560; (ULANDER and TOLLENS), A., ii, 193.
- compounds from (ZOPF), A., i, 672.
- Light**. See under Photochemistry.
- Lignification** (LINDE), A., ii, 311.

- Lignin**, estimation of, in crude fibre (KÖNIG), A., ii, 905.
- Lignite**, bituminous (HÜBNER), A., ii, 552.
- determination of the calorific value of, with the Lewis-Thomson calorimeter (SALVADORI), A., ii, 900.
- Lignites**, estimation of volatile combustible matters in (SOMERMEIER), A., ii, 802.
- Lilac**, detection and estimation of syringin in the various organs of (VINTILESCO), A., ii, 701.
- Lime**. See Calcium oxide.
- Lime liquors**, used, estimation of ammonia in (PROCTER and McCANDLISH), A., ii, 392.
- Limene** and its hexabromide (SCHMIDT and WEILINGER), A., i, 299.
- Limestone**, argillaceous, co-operative analysis of (HILLEBRAND, DUDLEY, RICHARDSON, and STOKES), A., ii, 307.
- d-Limonene** from the oil from the fruit of *Pittosporum undulatum* (POWER and TUTIN), T., 1087; P., 170.
- nitrosochlorides, action of magnesium methyl iodide on (TILDEN and SHEPHEARD), T., 920; P., 162.
- Limulus heart**, researches on (CARLSON), A., ii, 558.
- chemical conditions for activity in (CARLSON), A., ii, 558.
- respiration of (NEWMAN), A., ii, 237.
- action of chloral hydrate on (CARLSON), A., ii, 877.
- action of drugs on (CARLSON), A., ii, 878.
- Linalool** and its phenylurethane (ENKLAAR), A., i, 377.
- Linalyl propionate** (HOUBEN), A., i, 520.
- Linking**, acetylenic (STRAUS and MÜLLER), A., i, 77.
- double, modern theories of (CIAMICIAN), A., i, 104.
- optical effects of adjacent (BRÜHL), P., 319.
- ethylenic, influence of the position of the, on the electro-affinity and characters of unsaturated alicyclic acids (ANATI), A., i, 958.
- See also Bonds.
- Linseed cakes**, adulteration of (ROGER), A., ii, 404.
- Lipectia** and diabetes (TURNERY and DUDGEON), A., ii, 109.
- intra-ocular, and diabetes (WHITE), A., ii, 566.
- Lipase**, action of (ARMSTRONG), A., i, 126; (LOEVENHART), A., i, 328; (TAYLOR), A., i, 918.
- Lipase**, influence of chemical constitution on the action of, on esters (KASTLE), A., i, 548.
- action of ozone and other oxidising agents on (KASTLE), A., i, 615.
- fission of lipid substances by (MAYER), A., i, 918.
- pancreas, action of synthetical bile acids on the activity of (MAGNUS), A., ii, 691.
- Lipoid substances**, fission of, by lipase (MAYER), A., i, 918.
- Lipoids**, influence of diffusibility and solubility of, on the rate of intestinal absorption (KATZENELLENBOGEN), A., ii, 780.
- Liquid-gaseous state**. See Gaseous-liquid state.
- Liquid mixtures**, viscosity of (DUNSTAN), P., 89; (DUNSTAN and WILSON), P., 308; (GETMAN), A., ii, 832.
- binary, vapour pressures of (MARSHALL), T., 1350; P., 154.
- volume of a dissolved substance (LUMSDEN), P., 306.
- Liquids**, relation between electrolytic conduction, specific inductive capacity, and chemical activity of certain (MATHEWS), A., ii, 3, 327.
- theory of the intermiscibility of (HOLMES), T., 1774; P., 272.
- limited miscibility of (BÜCHNER), A., ii, 731.
- which are mutually insoluble, distillation of (v. RECHENBERG and WEISSWANGE), A., ii, 72.
- separation of, into layers (SMIRNOFF), A., ii, 839.
- flow of, through capillary spaces (BELL and CAMERON), A., ii, 833.
- polymerisation of (BOGDAN), A., ii, 274.
- weighing bottle for (BUSCHMANN), A., ii, 832.
- heavy, separating apparatus for (KAISER), A., ii, 662.
- volatile, calorimetry of (ROSENHAIN), A., ii, 269.
- Lithium**, preparation of metallic (RUFF and JOHANNSEN), A., ii, 282.
- secretion of, in urine (BERGER), A., ii, 692.
- Lithium bromide**, conductivity and viscosity of solutions of, in water, methyl alcohol, ethyl alcohol, acetone, and binary mixtures of these solvents (JONES and McMMASTER), A., ii, 737.
- chromates (SCHREINEMAKERS), A., ii, 24.
- hydroxide and its hydrate (DE FORCET), A., ii, 445.

- Lithium iodide**, decomposition of, in the organism (BERGER), A., ii, 692.
mercuric iodides (DUBOIN), A., ii, 85.
nitrate, conductivity and viscosity of solutions of, in mixtures of acetone with methyl alcohol, ethyl alcohol, and water (JONES and BINGHAM), A., ii, 66.
alumino-silicates (WEYBERG), A., ii, 23.
sulphate, equilibrium in the system, water, aluminium sulphate, and (SCHREINEMAKERS and DE WAAL), A., ii, 855.
equilibrium in the system, ammonium sulphate, water, and (SCHREINEMAKERS and COCHERET), A., ii, 424.
- Liver**, acetone formation in the (EMBDEN and KALBERLAH; EMBDEN, SALOMON, and SCHMIDT), A., ii, 375.
as a storehouse for proteids (SEITZ), A., ii, 241.
proteids of (POHL), A., ii, 106.
sugar-yielding substances in (TÜRKEL), A., ii, 872.
sugar formation in isolated (IWANOFF), A., ii, 466.
of oxen, behaviour of some peptides towards the juice of (ABDERHALDEN and RONA), A., ii, 873.
- Liver autolysis**, influence of alkalinity on (v. DRJEWESKI), A., ii, 873.
- Liver cells**, crystals in the nuclei of (HERRING), A., ii, 782.
- Longstaff medal**, presentation of, to Professor W. N. Hartley, P., 169, 246.
- Lottia gigantea* eggs. See under Eggs.
- Luminescence** of certain organic compounds between +100° and -190° (BORISSOFF), A., ii, 317.
- Lung tissue**, does, invert lactose? (RIEHL), A., ii, 782.
- i-Lupanine* platinichloride, crystallography of (RANFALDI), A., i, 664.
- Lupeol**, presence of, in some kinds of gutta-percha (VAN ROMBURGH), A., i, 20.
- Lupin seedlings**, action of aluminium salts on (HOUSE and GIES), A., ii, 191.
- Lupins** (NEUBAUER), A., ii, 625.
- Lupinus albus*, distribution of manganese in the different parts of (PASERINI), A., ii, 117.
amount of tyrosine in seedlings of (SCHULZE and CASTORO), A., ii, 795.
- 2:4-Lutidine**, condensation of, with aldehydes (LANGER), A., i, 38.
- Lymph**, the post-mortem flow of (BAINBRIDGE), A., ii, 782.
- amino-acids in (HOWELL), A., ii, 868.
- Lysins** and enzymes, comparison of (WALKER), A., i, 327.
- Lysol**, poisoning by. See under Poisoning.
- i-Lysyl-lysine* and its hydrochloride (FISCHER and SUZUKI), A., i, 78.
- M.**
- Mace**, detection of sugar in (SPAETH), A., ii, 500.
- Magnesia**. See Magnesium oxide.
- Magnesium** and calcium, metabolism of (GOITEIN), A., ii, 870.
- Magnesium alloys** with antimony, bismuth, cadmium, and zinc (GRUBE), A., ii, 355.
with calcium (STOCKEM), A., ii, 285.
with silver (SCHEMTSCHUSCHNY), A., ii, 539.
with sodium (MATHEWSON), A., ii, 165.
- Magnesium salts** and calcium salts, influence of, on bacterial actions (MACHIDA), A., ii, 380.
- physiological action of (MELTZER and AUER), A., ii, 244, 473.
- Magnesium perborate** (DEUTSCHE GOLD- & SILBER-SCHEIDE-ANSTALT VORM. ROESSLER), A., ii, 448.
- bromide and iodide, compounds of, with esters (MENSCHUTKIN), A., i, 132.
crystalline alcoholates of (MENSCHUTKIN), A., i, 131.
etherates of, action of anhydrous alcohols, esters, and water on (MENSCHUTKIN), A., i, 131, 132, 552.
hydrates, solubility of, in water (MENSCHUTKIN), A., i, 132.
carbonates, basic (DAVIS), A., ii, 670.
chloride, hydrated. See Bischofite.
mercuric iodides (DUBOIN), A., ii, 544.
- permanganate as an oxidising agent (MICHAEL and GARNER), A., ii, 229.
- oxide (*magnesia*) and lime as manures for flax and spinach (NAMIKAWA), A., ii, 892.
- peroxide**, commercial (v. FOREGGER and PHILIPP), A., ii, 352.
preparation of (MERCK), A., ii, 853.
- oxybromide** and **oxyiodide**, etherates of (MENSCHUTKIN), A., i, 132.
- sulphate**, compound of, with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 631.
- estimation of sodium sulphate in (MOSSLER), A., ii, 395.

- Magnesium organic compounds** (TSCHELINZEFF), A., i, 489.
 containing ethyl ether, new series of (TSCHELINZEFF), A., i, 241.
 heats of formation of, from their elements, and the heat evolved in the preparation of (TSCHELINZEFF), A., ii, 335.
 thermochemical investigation of the decomposition of, by water (TSCHELINZEFF), A., ii, 334.
 retarding or paralysing action of chloroform, &c., on the production of (REYCHLER), A., ii, 836.
 action of disulphides on (WUYTS), A., i, 257.
 reaction of, with unsaturated compounds (KOHLER and HERITAGE), A., i, 96; (KOHLER), A., i, 427, 753.
 See also Grignard's reaction and reagent.
- Magnesium ether complexes**, thermochemical investigation of the decomposition of, by water (TSCHELINZEFF), A., ii, 334.
- Magnesium** detection of, by Schlagdenhauffen's reaction (GRIMBERT), A., ii, 307; (BELLIER), A., ii, 396.
 indirect estimation of, by weighing as phosphomolybdic anhydride (BERJU), A., ii, 706.
 estimation of, in hydrochloric acid soil extracts (NEUBAUER), A., ii, 52.
- Magnetic compounds** of non-magnetic elements (WEDEKIND), A., ii, 70.
- Magnetic investigations** on certain magnetic colloids (SCARPA), A., ii, 829.
- Magnetic iron ore** of Diélette, Manche, structure and probable origin of the (CAYEUX), A., ii, 368.
- Magnetic rotation.** See under Photochemistry.
- Magnetic susceptibility** of the manganic salts (WEBER), A., ii, 331.
- Magnus' green salt**, a new red compound isomeric with (JÖRGENSEN and SØRENSEN), A., ii, 289.
- Malachite-green**, influence of nuclear substituents on the shade of (NOELTING and GERLINGER), A., i, 607.
- Malacone**, a silicate of zirconium, containing argon and helium (KITCHIN and WINTERSON), T., 1568; P., 251.
- Malamide**, influence of various substituents on the optical activity of (FRANKLAND and DONE), T., 1859; P., 286.
- Maleic acid**, bromo-, reactions of (LOSSEN and MENDELTHAL), A., i, 798.
- Maletto tannin** (STRAUSS and GSCHWENDNER), A., i, 597.
- Malic acid**, estimation of, in fruit juices, both fermented and unfermented (MESTREZAT), A., ii, 635.
- Malic acid**, salts, detection of (TOCHER), A., ii, 813.
 alkaline earth salts, solubility of, in water (CANTONI and BASADONNA), A., i, 799.
- molybdyl and tungstyl salts, complex, rotation of (GROSSMANN and PÖTTER), A., i, 799.
- Malic acid**, bromo-, reactions of, and its salts, and the hydrated acid (LOSSEN, DUECK, and LEOPOLD), A., i, 797.
 chloro-, reactions of, and its salts and methyl ester (LOSSEN, NIEHRENHEIM, and SCHÖRK), A., i, 797.
- Malonanilide**, sulphur derivative, and its transformation product (REISSERT and MORE), A., i, 826.
- Malonic acid**, condensation of, with ketones (KNOEVENAGEL), A., i, 482.
 estimation of, in maple products (SY), A., ii, 811.
- Malonic acid**, ethyl ester, reaction of, with nitrous anhydride (CURTISS), A., i, 480.
 sodium derivative, condensation of, with ethyl $\beta\beta$ -dimethylglycidate (HALLER and BLANC), A., i, 625.
 action of tribromopropane on (PERKIN and SIMONSEN), P., 133.
 ester chlorides, decomposition of (LEUCHS), A., i, 796.
- Malonic acid**, amino-, methyl and ethyl esters, hydrochlorides of (PILOTY and NERESHEIMER), A., i, 146.
- a-Malon-naphthil** (MEYER and V. LUTZAU), A., i, 765.
- Malononitrile** and its alkyl homologues, condensation of, with guanidine and its derivatives (MERCK), A., i, 537.
- Malonylbis-1-amino-2:5-dimethyl-pyrrrole-3:4-dicarboxylic acid**, ethyl ester (BÜLOW and WEIDLICH), A., i, 981.
- Malonyldiacetylhydrazide** and its methyl derivative (BÜLOW and WEIDLICH), A., i, 982.
- Malonyldihydrazide**, methyl derivative (BÜLOW and WEIDLICH), A., i, 982.
- Malt**, mineral compounds which may possess the rôle, like diastase, of liquefying (WOLFF), A., i, 66.
 relation between the amount of nitrogen and the character of Austrian barleys to the yield of extract and to the friability by the (PRIOR), A., ii, 135.

- Malt analysis**, diastatic catalysis of hydrogen peroxide applied to (VAN LAER), A., ii, 591.
- Malt diastase**. See Diastase.
- Malt-extract**, new properties of (MAQUENNE and ROUX), A., ii, 623.
- Malt germs**, composition and food value of (BARNSTEIN), A., ii, 701.
- hordenine from (LÉGER), A., i, 204.
- Maltase** of pancreatic juice (BIERRY and GAIJA), A., ii, 780.
- Maltose** and *isomaltose*, synthesis of, and their detection (ARMSTRONG), A., i, 127.
- formation of, from the dextrins obtained by the saccharification of starch (MAQUENNE and ROUX), A., i, 327, 547; (FERNBACH), A., i, 327; (FERNBACH and WOLFF), A., i, 484.
- Maltosephenylhydrazone** (LANDRIEU), A., ii, 270.
- Malylureide**, action of bromine on (GABRIEL), A., i, 636.
- Mammary glands**. See under Glands.
- Mandelic acid**, resolution of (MARCKWALD and PAUL), A., i, 958.
- Mandelonitrile**, *o*-nitro-, derivatives of (HELLER and MAYER), A., i, 585.
- o*-nitroso- (HELLER), A., i, 585.
- Manganese**, distribution of, in the different parts of *Lupinus albus* (PASSERINI), A., ii, 117.
- boiling and distillation of (MOISSAN), A., ii, 232.
- action of, on germination (MICHEELS and DE HEEN), A., ii, 791.
- action of, on plants (SALOMONE), A., ii, 792.
- Manganese compounds** with boron, magnetic properties of (BINET DU JASSENNEIX), A., ii, 520.
- with silicon (DOERINCHEL), A., ii, 676.
- Manganese alloy** with aluminium and copper, Heusler's magnetic (GRAY), A., ii, 266.
- with iron. See Ferromanganese and Spiegeleisen.
- with molybdenum (ARRIVAUT), A., ii, 676, 758.
- with tungsten (ARRIVAUT), A., ii, 861.
- Manganese salts**, compounds of, with ethylenediamine (GROSSMANN and SCHÜCK) A., i, 630.
- compounds of, with thiocarbamide (ROSENHEIM and MEYER), A., i, 408.
- as manure. See under Manure.
- Manganese mercuric iodide** (DUBOIN), A., ii, 544.
- Manganese sulphate**, mixed crystals of, with zinc sulphate between 0° and 39° (SAHMEN), A., ii, 169.
- Manganous ammonium sulphate** (LANG), A., i, 627.
- Manganic salts**, magnetic susceptibility of (WEBER), A., ii, 331.
- Manganese**, detection of, by the use of potassium periodate (BENEDICT), A., ii, 128.
- estimation of small quantities of (TARUGI), A., ii, 631.
- estimation of, in ferromanganese and spiegeleisen (KETREIBER), A., ii, 494.
- estimation of, in iron. See under Iron.
- and iron, separation of, from cobalt and nickel (FUNK), A., ii, 806.
- Manganic and Manganous salts**. See under Manganese.
- Manihot Glaziovii**, fatty oil from the seeds of (FENDLER and KUHN), A., ii, 482.
- Mannitol**, action of *Bacillus lactis aerogenes* on (HARDEN and WALPOLE), A., ii, 380.
- Manometer**, shortened, with reproducible vacuum (UBBELOHDE), A., ii, 739.
- Mantles**, Auer, containing different quantities of cerium, emissive power and temperature of (RUBENS), A., ii, 509.
- Manure**, factors which affect the phosphoric acid of bone meal as (SÖDERBAUM), A., ii, 121.
- influence of the reaction of, on the yield (Asō and BAHADUR), A., ii, 890.
- calcium cyanamide as (V. SEELHORST and MÜTHER), A., ii, 47; (BARTSCH), A., ii, 481; (V. FEILITZEN; WEIN), A., ii, 487; (Asō), A., ii, 890; (INAMURA), A., ii, 891.
- compound of calcium cyanamide as a nitrogenous (SHUTT and CHARLTON), A., ii, 891.
- containing calcium cyanamide, spontaneous formation of dicyanodiamide in (PEROTTI), A., ii, 304.
- farmyard, preservation of (IMMENDORFF), A., ii, 487.
- felspar and mica as (PRIANISCHNIKOFF), A., ii, 47.
- iron sulphate as (VOELCKER; KATAYAMA), A., ii, 888.
- manganese salts as (BERTRAND), A., ii, 121; (VOELCKER; KATAYAMA; NAGAOKA), A., ii, 888.
- nitrates and nitrites as (SCHLÆSING), A., ii, 121.

- Manure**, potassium salts as (VOELCKER), A., ii, 888 ; (ASŌ ; NAMIKAWA), A., ii, 891.
 relation of sodium to potassium as (BREAZEALE), A., ii, 891.
 sodium nitrate as, for Japanese crops (ASŌ), A., ii, 890.
 sodium silicate as, for barley and wheat (VOELCKER), A., ii, 888.
 straw, effect of, on crops (v. SEELHORST), A., ii, 702.
 estimation of phosphoric acid as magnesium ammonium phosphate in (JÖRGENSEN), A., ii, 579.
 estimation of phosphoric acid in, by phosphomolybdic anhydride (BERJU), A., ii, 250, 706.
 estimation of potassium in mixed (KLING and ENGELS), A., ii, 580.
 See also Fertilisers, Plants, and Soil.
- Manurial experiments** (WAGNER), A., ii, 120 ; (ULBRICHT), A., ii, 304.
 with "Agricultural-phosphate" (BACHMANN), A., ii, 702.
 with lime (HOFFMANN), A., ii, 193.
 with new nitrogenous manures (SEBELIEN), A., ii, 575.
- Manurial value** of different forms of calcium for cereals as (LAZZARI), A., ii, 892.
 of lime and magnesia for flax and spinach (NAMIKAWA), A., ii, 892.
- Maple products**, analysis of (SY), A., ii, 811.
- Maple sugar and syrup**, determination of the "lead number" in (WINTON and KREIDER), A., ii, 811.
- Margarine**, detection of foreign colouring matters in (FENDLER), A., ii, 58.
- Marsh soils**. See under Soils.
- Mass law**. See under Affinity, chemical.
- Matter**, dissociation of, under the influence of light and heat (RAMSAY and SPENCER), A., ii, 715 ; (LE BON), A., ii, 825.
- Meat**, gravimetric estimation of potassium nitrate in (PAAL and MEHRTENS), A., ii, 898.
 preserved, sodium nitrate in (ANDOUARD), A., ii, 492.
- Meat extracts** (KUTSCHER), A., ii, 562.
 hydrolysis of (MICKO), A., i, 778.
- Medullary centres**, toxic action of intravenous injections of magnesium salts on the (MELTZER and AUER), A., ii, 244.
- Melezitose**, hydrolysis of (TANRET), A., i, 560.
- Mellitic acid** (*benzenehexacarboxylic acid*), condensation of, with resorcinol (SILBERRAD), T., 1787 ; P., 251.
- Melting point**, abnormal changes of (ROHLAND), A., ii, 422.
 and coefficient of expansion of the solid elements, relation between the (WIEBE), A., ii, 331.
 determination of, by optical methods (DOELTER), A., ii, 726.
 determination of, in capillary tubes (WEGSCHEIDER), A., ii, 8.
- Melting point curves**, course of, for compounds which are partially dissociated in the liquid phase, the proportion of the products of dissociation being arbitrary (VAN LAAR), A., ii, 331.
 course of, for solid solutions (or isomorphous mixtures) in a special case (DAY and ALLEN), A., ii, 178 ; (VAN LAAR), A., ii, 422.
- Melting point tube holder** (LENZ), A., ii, 432.
- Membrane**, colloidal, gaseous osmosis through a (AMAR), A., ii, 337.
- Membranes**, precipitation, in jellies (BECHHOLD and ZIEGLER), A., ii, 738.
- Memorial lecture**; Cleve (THORPE), T., 1301 ; P., 169.
- $\Delta^{3,8(9)}$ -**Menthadiene**, active, synthesis of (SEMMLER and RIMPEL), A., i, 682.
- $\Delta^{3,8(9)}$ -*p*-**Menthadiene**, synthesis of the optically active modifications of (KAY and PERKIN), T., 839 ; P., 72.
- $\Delta^{3,8(9)}$ -*p*-**Menthadienes**, *d*- and *dl*-densities, magnetic rotations, and refractive powers of (PERKIN), T., 849.
- Menthancidcarboxylic acid**, amino-lactam of (CLARKE and LAPWORTH), T., 1879.
- p*-**Methane-2:3-diol** (SEMMLER and MCKENZIE), A., i, 373.
- p*-**Methane-8:9-diol** (SEMMLER and RIMPEL), A., i, 682.
- Methane-2-one**, 8-hydroxy-. See Dihydrocarvone hydrate.
- m*-**Methane-2- and -4-ones**, synthesis of, from 1-methylcyclohexane- 2- and -4-ones (KÖRTZ and MICHELS), A., i, 666.
- i*-**Menthene** (Δ^3 -*p*-menthene), synthesis of, and its nitrosochloride (PERKIN), T., 832.
- i*- $\Delta^{4(8)}$ -**Menthene**, synthesis of (WALLACH), A., i, 682.
- $\Delta^{3,9}$ -**Menthene**, synthesis of (SEMMLER and RIMPEL), A., i, 682.
- Δ^{1-m} -**Menthanol**(8) (PERKIN and TATTERSALL), P., 269.
- Δ^3 -*p*-**Menthanol**(8), synthesis of the optically active modifications of (KAY and PERKIN), T., 839 ; P., 72.
- dl*- Δ^3 -*p*-**Menthanol**(8), density, magnetic rotation, and refractive power of (PERKIN), T., 851.

- Menthol**, electrolytic oxidation of (LAW), T., 1452.
- Menthol, tertiary (p-menthanol-4)**, synthesis of (PERKIN), T., 832.
- Mentholcarboxylactones**, cyano-, isomeric (CLARKE and LAPWORTH), T., 1880.
- Menthone**, synthesis of, from methylcyclohexanone (KÖRTZ and HESSE), A., i, 88.
- Menthonecarboxylic acid** and its anhydride, semicarbazone, and anhydramide (CLARKE and LAPWORTH), T., 1873; P., 285.
- Menthonecyanohydrin**, cyano- (CLARKE and LAPWORTH), T., 1877; P., 285.
- Methyl salicylate** (BIBUS and SCHEUBLE), A., i, 852.
- L-Menthylcarbimide**, reactions of, with alcohols (PICKARD, LITTLEBURY, and NEVILLE), T., 93; (PICKARD and LITTLEBURY), T., 467; P., 71. resolution of α -phenyl- α -4-hydroxyphenylethane by (PICKARD and LITTLEBURY), T., 467; P., 71. resolution of ac-tetrahydro-2-naphthol by (PICKARD and LITTLEBURY), T., 1254; P., 238.
- Mercaptans**, formation of, by the reduction of aromatic sulpho-acids (SCHWALBE), A., i, 841.
- Mercuric and Mercurous salts**. See under Mercury.
- Mercury**, flame spectrum of (DE WATTÉVILLE), A., ii, 137. line spectrum of (STARK), A., ii, 514. vapour pressure of (GEBHARDT), A., ii, 9. apparatus for distilling, in a vacuum (ANDERLINI), A., ii, 605. movements of crystals on, while dissolving due to electro-capillarity (THIEL), A., ii, 325.
- Mercury alloys (amalgams)**, constitution of (SMITH), A., ii, 673. with ammonium, constitution of (RICH and TRAVERS), T., 872; P., 136. with silver, chemical equilibrium between a solution of silver and mercury nitrates and (REINDERS), A., ii, 219. with strontium (GUNTZ and ROEDERER), A., ii, 668. with thallium, composition of (SUCHENI), A., ii, 826.
- Mercury compounds** of nitrophenols (HANTZSCH and AULD), A., i, 471. with thiocarbamide (ROSENHEIM and MEYER), A., i, 408.
- Mercury salts**, reactions of acetylene with acidified solutions of (NIEUWLAND and MAGUIRE), A., i, 721.
- Mercury salts**, action of ammonia or amines on (STRÖMHLAND), A., i, 935.
- Mercury chromates** (COX), A., ii, 757.
- haloids**, vapour pressure of (WIEDEMANN, STELZNER, and NIEDERSCHULTE), A., ii, 9.
- nitrate and silver nitrate**, chemical equilibrium between a solution of, and silver amalgams (REINDERS), A., ii, 219.
- oxychloride, hexagonal**. See Kleinite.
- oxychlorides**, preparation of (DUKELSKI), A., ii, 544.
- sulphates**, action of iodine on (BRÜCKER), A., ii, 613.
- sulphide**, solubility of, in solutions of sodium sulphide (KNOX), A., ii, 608.
- Mercurous chloride (calomel)**, modification of (MEYER), A., ii, 29. physiological action of (NEMSER), A., ii, 778.
- Mercuric chloride**, solubility of, in ethyl acetate and acetone (ATEN), A., ii, 151. action of, on alcoholic solutions of dicyclopentadiene (HOFMANN and SEILER), A., i, 786.
- double salts of, with alkali chlorides and their solubility (FOOTE and LEVY), A., ii, 231.
- iodide, two forms of (MASCARELLI), A., ii, 757.
- compounds of, with free amines (FRANÇOIS), A., i, 484, 644.
- compounds of, with barium iodide (DUBOIN), A., ii, 359, 673.
- compounds of, with cadmium iodide and zinc iodide, isomorphism of (DUBOIN), A., ii, 544.
- double salts of, with calcium iodide (DUBOIN), A., ii, 231, 286.
- compounds of, with methylaniline (FRANÇOIS), A., i, 484.
- barium and sodium iodides (DUBOIN), A., ii, 359, 673.
- calcium and strontium iodides (DUBOIN), A., ii, 231, 286.
- lithium iodides (DUBOIN), A., ii, 85.
- magnesium and manganese iodides (DUBOIN), A., ii, 544.
- Mercury organic compounds** (SCHOLL and NYBERG), A., i, 563.
- alkyl derivatives, remarkable formation of (TAFEL), A., i, 941.
- ferricyanides (FERNEKES), A., i, 487.
- thiocyanate, compounds of, with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 631.
- cobalt and nickel thiocyanates, complex (ORLOFF), A., i, 406.

Mercury organic compounds:—

Mercuric oxycyanide (HOLDERMANN), A., i, 75, 411; (RUPP), A., i, 340; (v. PIEVERLING), A., i, 341.
potassium ferrocyanide (FERNKES), A., i, 149.

Mercury, estimation of, electrolytically, using the rotating anode (KROUPA), A., ii, 581.

estimation of, gasometrically and volumetrically, by hydrazine salts (EBLER), A., ii, 53.
 estimation of, volumetrically (RUPP), A., ii, 902.

estimation of, in antiseptic soaps (SEIDELL), A., ii, 252.

Mercury ores, assay of (HOLLOWAY), A., ii, 308.

Mercury pump. See under Pump.

Mero-, definition of the prefix (HANTZSCH), A., i, 856.

Meroquinine and its acetyl, hydroxy-, and nitroso-derivatives and their salts, and ethers (KOENIGS, BERNHART, and IBELE), A., i, 762.

Meroquininenelactone (KOENIGS, BERNHART, and IBELE), A., i, 763.

Mesembrianthemum crystallinum, variations in the nitrogen and phosphoric acid of the sap of (ANDRÉ), A., ii, 385.

Mesitoylacrylic acid (KÓZNIEWSKI and MARCHLEWSKI), A., i, 759.

Mesityl alcohol, dibromo-*o*-hydroxy-, acetates and bromide of (AUWERS, JESCHECK, SCHRÖTER, MARKOVITS, and ROEVER), A., i, 355.
 oxide (*methyl isobutyl ketone*; *isopropylideneacetone*), action of magnesium benzyl chloride on (v. FELLENBERG), A., i, 567.

bromide, dibromo-*p*-hydroxy-, and its acetate, and their compounds with bases (AUWERS and SCHRENK), A., i, 267.

Mesitylene, triozonide of (HARRIES and WEISS), A., i, 228.

Mesitylene, diamino-, monoacyl derivatives, action of nitrous acid on (MORGAN and MICLETHWAIT), T., 1298; P., 240.

Mesitylpiperidine, 4:6-dibromo-2-hydroxy- (AUWERS and SCHRENK), A., i, 269.

Mesoxalic acid, esters, amine derivatives of (CURTISS), A., i, 339.
 ethyl ester (CURTISS), A., i, 480.

Metabolic experiments, the behaviour of alkaline earths in (MARCUSE), A., ii, 464.

processes, action of chalybeate waters on (VANDEWEYER and WYBAUW), A., ii, 778.

Metabolism, action of lecithin on (SLOWIZOFF), A., ii, 779.

rôle of elementary nitrogen in animal (OPPENHEIMER), A., ii, 869.

influence of phosphoric acid and sodium phosphates on (DESGREZ and GUENDE), A., ii, 560.

effect of abundant proteid food on (SCHREUER), A., ii, 101.

influence of sodium nitrite on (SURVEYOR), A., ii, 560.

of calcium and magnesium (GOITEIN), A., ii, 870.

of nucleic acids in the organism (ABDERHALDEN and SCHITTENHELM), A., ii, 465.

of organic and inorganic phosphorus (LE CLERC and COOK), A., ii, 870.

incretins (SCHOLZ), A., ii, 102.
 carnivorous, behaviour of certain amides alone and in combination in (VÖLTRZ), A., ii, 560.

intermediary, lactic acid in (MANDEL and LUSK), A., ii, 463.

in the anaërobic stage of the pupæ of Calliphora (WEINLAND), A., ii, 560.

nitrogenous, influence of X-rays on (WILLIAMS), A., ii, 378.

action of asparagine on (LEHMANN and ROSENFIELD), A., ii, 560.

influence of subcutaneous injections of dextrose on (UNDERHILL and CLOSSON), A., ii, 778.

as affected by diet and by alkaline diuretics (HASKINS), A., ii, 870.

in animals, action of non-proteid nitrogenous substances on (KELLNER), A., ii, 690.

in normal individuals (HAMILL and SCHRYVER), A., ii, 463.

nuclein, and the ferments concerned, in man and animals (SCHITTENHELM), A., ii, 102, 779; (JONES and AUSTRIAN), A., ii, 561.

proteid, and muscular work (SAWJALOFF), A., ii, 561.

influence of barium and radium bromides on (BERG and WELKER), A., ii, 373.

uric acid (ALMAGIA; PFEIFFER), A., ii, 109.

Metal ammonium compounds (JOANNIS), A., ii, 161; (RUFF and GEISEL), A., ii, 228.

See also under the separate Metals.

Metallic carbides, production of graphite from (FRANK), A., ii, 21.

chlorides, action of nitrogen sulphide on (DAVIS), T., 1575; P., 261.

nitroso-compounds and nitric oxide (ZIMMERMANN), A., ii, 82.

- Metallic oxides**, electrical conductivity of (HORTON), A., ii, 260.
action of liquid ammonia on (ROSENHEIM and JACOBSON), A., ii, 760.
use of, as catalytic oxidising agents (SABATIER and MAILHE), A., i, 549; (MATIGNON and TRANNOY), A., ii, 427.
basic salts of bivalent (STRÖMTHOLM), A., ii, 344.
salts, fused, conductivity of (ARNDT), A., ii, 418.
action of sulphur on (MANUELLI), A., ii, 607.
inorganic. See Inorganic salts.
See also Salts.
substitution (VANDEVELDE and WASTEELS), A., ii, 167.
sulphates, reaction of, with sulphur (BRÜCKNER), A., ii, 279.
sulphides, photoelectric effects in (ROHDE), A., ii, 343.
conditions of precipitation and of solution of (BRUNI and PADOA), A., ii, 157.
thiocyanates, compounds of, with organic bases (GROSSMANN and HÜNSELER), A., i, 7; (GROSSMANN and SCHÜCK), A., i, 629, 630.
- Metalliferous veins** of the Val de Villé, Vosges, Alsace (UNGEMACH), A., ii, 765.
- Metals** found in the excavations of the Tell Acropolis of Susa in Persia (BERTHELÉOT and ANDRÉ), A., ii, 230.
free, production of (GAUTIER), A., ii, 548.
and their salts, radioactivity of (CAMPBELL), A., ii, 411.
heating effects produced by Röntgen rays in, and their relation to the question of change in the atom (BUMSTEAD), A., ii, 141.
specific action of, in electric discharge by X-rays and secondary rays (HURMUZESCU), A., ii, 259.
electric measurements on (FAWSITT), A., ii, 328.
cathodic evaporation of, in attenuated gases (KOHLSCHTTER and MÜLLER), A., ii, 418.
distillation of (MOISSAN), A., ii, 92, 175, 282.
theory of the passivity of (MÜLLER; FREDENHAGEN), A., ii, 76.
solution of (ERICSSON-AURÉN and PALMAER), A., ii, 839.
influence of, on fermenting liquids (NATHAN, SCHMID, and FUCHS), A., ii, 569.
- Metals**, bivalent, compounds of thiocarbamide with salts of (ROSENHEIM and MEYER), A., i, 407.
ferromagnetic, magnetisation and magnetic change of length in, at temperatures ranging from -186° to $+1200^{\circ}$ (HONDA and SHIMIZU), A., ii, 69.
rapid electroanalysis of (SAND), P., 43.
general method for the separation of, without using hydrogen sulphide (EBLER), A., ii, 126.
- Metanicotine**, reduction of, with sodium and absolute alcohol (MAAS and HILDEBRANDT), A., i, 980.
- Metazirconic acid**. See under Zirconium.
- Meteoric stone** from Estacado, Texas (HOWARD; DAVISON), A., ii, 685.
from the Kangra Valley, description and spectrographic analysis of (HARTLEY), T., 1566; P., 251.
- Meteorite**, South Bend (FARRINGTON), A., ii, 775.
stony, from Coon Butte, Arizona (MALLET), A., ii, 370.
from Modoc, Kansas (MERRILL and TASSIN), A., ii, 371.
- Methæmoglobin**, formation of (BABEL), A., i, 779, 914.
- Methæmoglobins** from globin and haematin, action of sodium fluoride on (MOITESSIER), A., i, 779.
- Methane**, synthesis of (PRING and HUTTON), T., 1591; P., 261; (ELWORTHY and WILLIAMSON), A., i, 225.
temperature of combustion of, in presence of palladiumised asbestos (DENHAM), A., ii, 56.
diffusion of (KASSNER), A., ii, 273.
production of, in biological processes (OMELIANSKY), A., ii, 188.
oxidation of, by Bacteria (KASERER), A., ii, 113.
as carbon-food and source of energy for Bacteria (SÖHNGEN), A., ii, 42.
- Methane**, tribromo-, trichloro-, and tri-iodo-. See Bromoform, Chloroform, and Iodoform.
iodotrinitro-. See Iodopicrin.
trinitro-. See Nitroform.
- Methanedisulphonic acid**. See Methionic acid.
- Methenylbis-methyl-, -phenylmethyl-, and -diphenyl-pyrazolones** (BETTI and MUNDICI), A., i, 543.
- Methineammonium** compounds (RUPE and PORAI-KOSCHITZ), A., i, 754.
dyes (RUPE and SIEBEL), A., i, 858.

- Methionic acid**, chloride and anilide of (FARBENFARIKEN VORM. F. BAYER & Co.), A., i, 787.
- β -Methoxy- β -alkylacryonitriles**, synthesis of (MOUREU and LAZENNEC), A., i, 240.
- 2-*o*-Methoxyanilino-5-nitrobenzophenone** (ULLMANN and ERNST), A., i, 206.
- 2-Methoxyanthraquinone**, 1-chloro- (DECKER and LAUBE), A., i, 193.
- β -Methoxyanthraquinones**, α -nitro-, preparation of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 677.
- 2-Methoxy-1:4-anthraquinone-4-anil** (LAGODZINSKI), A., i, 294.
- 1-Methoxyanthrone** (GRAEBE and BERNHARD), A., i, 866.
- p*-Methoxybenzaldoxime** peroxide (FRANZEN and ZIMMERMANN), A., i, 388.
- p*-Methoxybenzenediazo- ψ -semicarbazinocamphor** and its reactions (FORSER), T., 237; P., 31.
- 2-Methoxybenzophenone**, 5-hydroxy-, and its phenylhydrazone (KAUFFMANN and GROMBACH), A., i, 284.
- 3:5-dinitro-** (ULLMANN and BRODO), A., i, 188.
- 2'-Methoxybenzophenone**, 5:5'-*dibromo*-2-hydroxy- (DIELS and ROSEN MUND), A., i, 674.
- 4-Methoxybenzophenone**, 2-chloro-5-nitro- (ULLMANN and ERNST), A., i, 206.
- p*-Methoxybenzoyl- ψ -methylthiocarbamide** (JOHNSON and JAMIESON), A., i, 352.
- Methoxybenzylamine**, *o*-hydroxy-, *N*-acyl derivatives of (EINHORN, BISCHKOPFF, SZELINSKI, and MAUERMAYER), A., i, 246.
- p*-Methoxybenzylcyclopentene** and its compound with bromine (THIELE and BALHORN), A., i, 640.
- 3'-Methoxycaffeine**, 8-chloro- (FISCHER and ACH), A., i, 219.
- 2-Methoxycinchonic acid** and its methyl ester (MEYER), A., i, 108; (MULERT), A., i, 534.
- o*-Methoxydiphenyl sulphide** (MAUTNER), A., i, 949.
- o*-*p*-Methoxy- $\omega\delta$ -diphenylfulgenic acid** and its fulgide (STOBBE, BADENHAUSEN, and KAUTZSCH), A., i, 279.
- 8-Methoxy-2:3-diphenylquinoxaline**, 7-hydroxy- (FICHTER and SCHWAB), A., i, 842.
- 3-Methoxy-4-ethoxybenzenesulphonic acid** and its amide and chloride (PAUL), A., i, 843.
- 3-Methoxyfluorenone** and its **2-carboxylic acid** and its methyl ester (ERRERA and LA SPADA), A., i, 277.
- δ -Methoxy- Δ^{β} -hexene** (REIF), A., i, 394.
- β -Methoxylamino- β -phenylpropionic acid** (POSNER), A., i, 955.
- Methoxyl group**, replacement of the acetyl group by the, by the action of diazomethane (HERZIG and TICHATSCHEK), A., i, 173.
- Methoxyl groups**, replacement of, by alkyl radicles (REFORMATSKY), A., i, 136.
- p*-Methoxymesityl bromide**, *dibromo*, and its compounds with bases (AUWERS and SCHRENK), A., i, 269.
- 6-Methoxy-2-methylquinoline-6-methylquinolinecyanine** methiodide (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 716.
- Methoxymethylsuberaneoxime** (WALLACH), A., i, 371.
- 1-Methoxynaphthalene**, 8-amino-, and its diazonisation and salts, and acetyl derivative and its bromo-compound (FICHTER and GAGEUR), A., i, 841.
- 2-Methoxynaphthalene**, 5-amino-, *N*-acetyl derivative of (SACHS, APPENZELLER, HEROLD, MYLO, SCHÄDEL, and SUTTER), A., i, 830.
- 3-Methoxynaphthalene**, 2-hydroxy-, and its acetyl derivative (BAEZNER, GARDIOL, and GUEORGUIEFF), A., i, 700.
- 4-Methoxy- α -naphthol** (BADISCHE ANILIN- & SODA-FABRIK), A., i, 951.
- Methoxynaphthoylebenzoic acid** and 6-nitro-, methyl esters (ORCHARDSON and WEIZMANN), T., 120.
- 6-Methoxynicotinic acid**, methyl ester (MEYER), A., i, 108.
- α -Methoxypentane- δ -ol**, $\epsilon\epsilon\epsilon$ -trichloro- (HAMONET), A., i, 133.
- 1-Methoxy-1:2-phenonaphthacridine**, 10-amino- (BAEZNER, GARDIOL, and GUEORGUIEFF), A., i, 700.
- 5-p-Methoxyphenylacridine**, 3-nitro- (ULLMANN and ERNST), A., i, 206.
- 9-Methoxy-5-phenylacridine**, 3-nitro- (ULLMANN and ERNST), A., i, 206.
- o*-Methoxyphenylbenzylmethylallyl-ammonium iodide** (WEDEKIND and FRÖHLICH), A., i, 162.
- p*-Methoxyphenyl- $\Delta^{1:3}$ - and - $\Delta^{2:5}$ -di-hydrophthalimides** (ABATI and CONTALDI), A., i, 959.
- α -Methoxyphenyl- $\delta\delta$ -dimethylfulgenic acids**, α - and p -, and their fulgides (STORBE and LENZNER), A., i, 278.
- 1-p-Methoxyphenylhydrocotarnine** (FREUND and REITZ), A., i, 601.

- 10-Methoxy-7-phenyl-9-methyl-7:12-dihydropheno- $\alpha\beta$ -naphthacridine** (ULLMANN and FITZENKAM), A., i, 45.
- 10-Methoxy-7-phenyl-9-methylpheno- $\alpha\beta$ -naphthacridine** and its additive salts (ULLMANN and FITZENKAM), A., i, 45.
- p-Methoxyphenyl- α -naphthyl- β -propionic acid** and its *p*-toluidide (FOSSE), A., i, 975.
- 2-Methoxy-3-phenylisooxazolidone** (POSNER), A., i, 955.
- β -p-Methoxyphenylpropaldehyde** and its semicarbazone (BALBIANO and PAOLINI), A., i, 186.
- o-Methoxyphenyl-dithiobiuret** and -thiouret hydriodide and hydrochloride (FROMM and SCHNEIDER), A., i, 657.
- p-Methoxyphenyl.** See also Anisyl.
- 3-Methoxypthalic acid** and its derivatives (ROBINSON), P., 323.
- 4-Methoxypthalic acid** (BENTLEY and WEIZMANN), P., 323.
- 6-Methoxy-m-phthalophenone**, 2:4-dihydroxy-, and its dibenzoyl derivative (PERKIN and ROBINSON), P., 306.
- 7-Methoxypropionic acid**, methyl ester, reduction of, by hydriodic acid (IRVINE), T., 938; P., 159.
- γ -Methoxypropylpiperidine** and its aurichloride (GABRIEL and COLMAN), A., i, 882.
- 5-Methoxypyridine-2-carboxylic acid**, 4-hydroxy-, methyl ester (MEYER), A., i, 109.
- Methoxypyridines**, 3- and 4-, and their additive salts (MEYER), A., i, 108.
- 4-Methoxyquinoline** and its additive salts and ψ -methyl ether and its additive salts (MEYER), A., i, 604.
- p-Methoxysalicylidenedimethoxy- α -hydride** (PERKIN and ROBINSON), P., 161.
- p-Methoxythiophenol**, *m*-amino-, and its salts, disulphide and its diazotisation, and diacetyl derivative (GNEHM and KNECHT), A., i, 836.
- 3-Methoxy-*o*-tolualdehyde** (PERKIN and WEIZMANN), T., 1652.
- 2-Methoxy-*p*-toluic acid** and its methyl ester (PERKIN and WEIZMANN), T., 1658.
- 3-Methoxy-*o*-toluic acid** and its methyl ester (CHUIT and BOLSING), A., i, 283.
- 3-Methoxy-*o*-tolylacrylic acid** (PERKIN and WEIZMANN), T., 1652.
- 2-Methoxytolyl-3-carbamide** and -thiocarbamide (SPIEGEL, MUNBLIT, and KAUFMANN), A., i, 837.
- α -Methoxytriphenylfulgenic acids**, *o*- and *p*-, and their salts and fulgides (STOBBE, BENARY, and NETTEL), A., i, 279.
- Methronic acid**, constitution of (TREPHIELLEFF), A., i, 528; (SCHROETER), A., i, 598.
- Methyl alcohol**, preparation of pure, and its specific gravity (KLASON and NORLIN), A., i, 921.
- effect of electrical discharges of high frequency on the vapour of (JACKSON and NORTHALL-LAURIE), T., 1190; P., 156.
- action of, on copper sulphate (AUGER), A., i, 550.
- detection of (VOISENET), A., ii, 807; (SCUDDER and RIGGS), A., ii, 808.
- detection of, in liquids containing ethyl alcohol (UTZ), A., ii, 56.
- estimation of, in solutions of formaldehyde by means of chromic acid (BLANK and FINKENBEINER), A., ii, 399.
- Methyl cyanoiminocarbonate** (BIDDLE), A., i, 340.
- ether, chlorination of (HENRY; DESCUDÉ), A., i, 558.
- ethyl xanthate, new synthesis of (FRY), A., i, 552.
- iodide, action of, on nitrogen iodide (SILBERRAD and SMART), T., 172; P., 15.
- mercaptan, production of, by faecal bacteria in peptone bouillon (HERTER), A., ii, 378.
- 2-Methylaconitic acid** and its silver salt (ANSCHÜTZ and DESCHAUER), A., i, 728.
- Methylaconitic acids**, α - and γ -, formation and tautomerism of (ROGERSON and THORPE), T., 642; P., 87.
- Methylacridine** methiodide, constitution of the cyanide and hydroxide from (TINKLER), T., 856; P., 135.
- 2-Methylacridone**, 7-chloro-1:9-dinitro- (ZINCKE and SIEBERT), A., i, 516.
- 7-Methylacridone**, 1:3:6-trinitro- (CUTTITTA), A., i, 697.
- 1:3:8-trinitro- (ERRERA and MALTESE), A., i, 85.
- Methylacrylic acid**, metallic salts (LOSSEN and GERLACH), A., i, 61.
- Methylal**, chlorination of (HENRY; DESCUDÉ), A., i, 558.
- 1-Methylalizarin** 3:4-dimethyl ether (PERKIN and WEIZMANN), T., 1660.
- 1-Methyl-4-alkyl-4-cyclohexanols** and their phenylcarbamates (SABATIER and MAILHE), A., i, 254.
- 1-Methyl-4-alkylcyclohexenes** (SABATIER and MAILHE), A., i, 254.

- Methylallyl-*o*-anisidine** and its picrate (WEDEKIND and FRÖHLICH), A., i, 162.
- Methylamine**, preparation of, from ammonia and methyl sulphate (BURMANN), A., i, 933.
- liquid, as a solvent, and a study of its chemical reactivity (GIBBS), A., i, 933.
- combinations of, with mercuric iodide (FRANÇOIS), A., i, 484.
- Methylamine, *N*-nitro-**, action of phenylcarbimide on (SCHOLL and HOLDERMANN), A., i, 767.
- 4'-Methylaminodiphenylamine**, 3'-chloro-4-hydroxy- (CHEMISCHE FABRIK GRIESHEIM-ELEKTRON), A., i, 890.
- 4'-Methylamino-4-ethoxydiphenylamine**, 3'-chloro- (CHEMISCHE FABRIK GRIESHEIM-ELEKTRON), A., i, 890.
- Methylaminoethyl benzoate** and its hydrochloride (CHEMISCHE FABRIK AUF AKTIEN VORM. E. SCHERING), A., i, 952.
- 2-Methylamino-4-methylthiazole**, methylation of (YOUNG and CROOKES), T., 68.
- Methylaminophenyl liminoalloxanic acid** (KÜHLING and KASELITZ), A., i, 465.
- 4-Methylamino-1-phenyl-3-methylpyrazolone**, *N*-chloroacetyl derivative (EINHORN and MAUERMAYER), A., i, 252.
- p-Methylamino-*o*-toluidine**. See 2:4-Tolylene-4-*N*-methyl diamine.
- Methylisoamylaniline**, preparation of (THOMAS and JONES), T., 294.
- Methylaniline**, 2:4-*di*- and 2:4:6-*tri*-bromo-, and their perbromides (FRIES), A., i, 646.
- 3-Methylanilino-1:4-diphenyl-4:5-di-hydro-1:2:4-triazole**, 5-hydroxy-, and its additive salts (BUSCH and MEHR-TENS), A., i, 116.
- 3-Methylanilino-1:4:5-triphenyl-4:5-di-hydro-1:2:4-triazole**, 5-hydroxy-, and its methochloride (BUSCH and MEHR-TENS), A., i, 118.
- iso***Methylanthracene** from Westphalian coal tar (BÖRNSTEIN), A., i, 414.
- Methylarabinosides**, α - and β , methylation of (PURDIE and ROSE), T., 1207; P., 201.
- Methylated spirits**, detection of, in tinctures, &c. (SCHMIDT and GAZE), A., ii, 57.
- Methylatropinium bromide**, toxicity of (BERTOZZI), A., ii, 475.
- 3-Methylbenzaldehyde**, α :5-*dibromo*-6-hydroxy-, compounds of, with amines, and their acetates (AUWERS and SCHRÖTER), A., i, 347.
- 2-Methylbenziminazole**, 6-chloro- and 6-chloronitro-, and its salts (FISCHER and LIMMER), A., i, 895.
- 1-Methylbenzofulvenecarboxylic acid** (THIELE and RÜDIGER), A., i, 588.
- 4'-Methylbenzophenone**, 5-chloro-2-amino-2'-hydroxy-, and its derivatives (ZINCKE and SIEBERT), A., i, 516.
- Methylbenzoquinoneimides**, *o*- and *m*-, amino-, salts of (KEHRMANN and PRAGER), A., i, 967.
- p-Methylbenzoylcarbinol** and its semicarbazone, acetate, and chloride (AUWERS), A., i, 963.
- 4-Methylbenzylidene** chloride, 3:5-dinitro- (GATTERMANN), A., i, 589.
- 4-Methylbenzylideneaniline**, 6-hydroxy- (ANSELMINO), A., i, 14.
- 3-Methylbenzylidene-*p*-chloroaniline** and *o*- and *p*-toluidines, 6-hydroxy- (ANSELMINO), A., i, 14.
- 5-Methylbenzylidenerhodanic acid**, 2 and 4-hydroxy- (BARGELLINI), A., i, 384.
- β-Methyl-*a*-bromomethylenehydantoin** (GABRIEL), A., i, 636.
- Methyl isobutetyl ketone**. See Mesityl oxide.
- 8-Methyl-2- Δ^a . and -2-*iso*-butenylquinolines** and their additive salts (HOFMANN), A., i, 41.
- β -Methylbutyl alcohol**, $\alpha\beta$ -dibromo- (COURTOT), A., i, 789.
- Methylisobutylaniline**, preparation of (THOMAS and JONES), T., 292.
- Methylisobutylcarbinol** and its iodide (CLARKE and SHREVE), A., i, 473.
- Methyltert.-butylcarbinol**, action of acetyl chloride on (HENRY), A., i, 329; (DELACRE), A., i, 551.
- Methyl isobutyl ketone** (CLARKE and SHREVE), A., i, 473.
- Methyl tert.-butyl ketone**. See Pinacolin.
- Methylisobutylpinacone** (CLARKE and SHREVE), A., i, 473.
- 3-Methyl-4-sec.-butyl-5-pyrazolone** (LOCQUIN), A., i, 928.
- 3-Methyl-8-isobutylxanthine** (TRAUBE and NITHACK), A., i, 215.
- α -Methylbutyric acid**, α -amino-, and its salts (v. GULEWITSCH and WASMUS), A., i, 409.
- α -Methylbutyronitrile**, α -hydroxy- (ULTÉE), A., i, 6.
- Methylcamphorformeneaminecarboxylic acid** (TINGLE and ROBINSON), A., i, 903.
- 2-Methylcarveol**. See 2-Methyl- $\Delta^{6,8(9)}$ -mentadiene-2-ol.
- Methylchloromethylalkylcarbinols** (RIEDEL), A., i, 632.

- 3-Methylcinchonic acid**, methyl ester, amide and chloride of (MEYER), A., i, 358.
- 2-hydroxy-, methyl ester (MEYER), A., i, 109.
- p-Methylcinnamic acid** and its ethyl ester and bromo-derivatives and *m*-nitro- (GATTERMANN), A., i, 589.
- Methylcitrazinic acids**, 3- and 5-, formation of (ROGERSON and THORPE), T., 643; P., 87.
- N-Methylceramidonol** and its ethers (DECKER and SCHENK), A., i, 690.
- o-Methylocumaric acid** dibromide and its alkoxy-derivatives (WERNER, SCHORNDORFF, and CHOROWER), A., i, 181.
- α-Methylcoumarin**, synthesis of (BAIDAKOWSKY), A., i, 178.
- 7-Methylcoumarin** (FRIES and KLOSTERMANN), A., i, 276.
- Methylcoumarins**, 5-, 6-, 7-, and 8-, and their 3-acetyl derivatives and their oximes, phenylhydrazones and semicarbazones and **carboxylic acids** and their ethyl esters (CHUIT and BOLSING), A., i, 185.
- 2-Methyl-p-cymene** and its **sulphonic acids** (KLAGES and SOMMER), A., i, 566.
- 4-Methyl 2:3-dicarbethoxypentan-4-olid**. See $\alpha\beta$ -Dicarbethoxy- $\gamma\gamma$ -dimethylbutyrolactone.
- as-ψ-Methyldiethylcarbamide** (McKEE), A., i, 732.
- Methyldiethylcarbinol**, chloro- (RIEDEL), A., i, 632.
and its reactions with secondary amines (SÜSSKIND), A., i, 133.
- 5-Methyl-2:4-diethylpyrimidine**, 6-amino-. See Cyanethine.
- Methyldihydrocarvone** and its oxime and semicarbazone (RUPE and LIECHTENHAN), A., i, 375.
- 4-Methyldihydrocinnamic acid**, $\alpha\beta$ -dibromo-, ethyl ester (GATTERMANN), A., i, 589.
- 2-Methyldihydrofuranone**, 3:4-dibromo- and -dichloro- (SIMONIS, MARBEN, and MERMOD), A., i, 32.
- 3-Methyl-2:3-dihydroindene-2-carboxylic acid**, resolution of, into its optically active isomerides (NEVILLE), T., 383; P., 64.
- Methyldihydroresorcin**, condensation of, with *m*-phenylenediamine (HAAS), T., 577.
- 4 Methyl-2:3-dihydrothiazole**, 2-imino-, acetyl derivative of (YOUNG and CROOKES), T., 67.
- Methyldihydrouracils**, α - and β -, trihydroxy-, and their reactions (BEHREND, OSTEN, and BEER), A., i, 309.
- Methyldinaphthacridine** and its additive salts (SENIER and AUSTIN), T., 1393; P., 241.
- Methyldinaphthaquinonitrole** (FRIES and HÜBNER), A., i, 190.
- as-ψ-Methyldipropylcarbamide** (McKEE), A., i, 732.
- Methylene-azure** (HANTZSCH), A., i, 206; (KEHRMANN and DUTTENHÖFER), A., i, 460.
chemical nature of (BERNTHSEN), A., i, 535.
- Methylenebischloroacetamide** (EINHORN and MAUERMAYER), A., i, 250.
- Methylenebis(trichloroacetamide)** (EINHORN and MAUERMAYER), A., i, 252.
- Methylenebisdiethylmalonamic acid** (EINHORN and MAUERMAYER), A., i, 252.
- Methylene-blue**, reduction of, by cows' milk (CATHCART), A., ii, 700.
absorption of, by the intestinal epithelium (SCHMIDT), A., ii, 694.
use of, for estimating sulphonic derivatives of aromatic amino- and hydroxy-compounds (VAUBEL and BARTEL), A., ii, 207.
- Methylene-blue**, nitro-. See **Methylene-green**.
- Methylene-blue-eosin staining**, nature of (BARRATT), A., ii, 785.
- Methylenecarbamidogallic acid** (VOSWINKEL), A., i, 961.
- Methylenecatechol**. See **Catechol**
methylene ether.
- Methylene compounds** (HENRY; DESCUDÉ), A., i, 558.
- Methylenediamine** and its dibenzoyl derivative (EINHORN and MAUERMAYER), A., i, 252.
- Methylenedibenzamidecarboxylic acid** (EINHORN, BISCHKOPFF, and SZELINSKI), A., i, 246.
- 3:4-Methylenedioxybenzylidenerhodanic acid** (BARGELLINI), A., i, 384.
- 3':4'-Methylenedioxy-3:4-dimethoxy-benzophenone** (PERKIN, WEIZMANN, and CREETH), T., 1662.
- Methylenedioxyhomophthalic acid** (PERKIN and ROBINSON), P., 160.
- Methylenedioxy- α -hydrindone** and its oxime and isonitroso-derivative (PERKIN and ROBINSON), P., 160.
- 3:4-Methylenedioxyphenyl- α -naphthyl- β -propionic acid** (FOSSE), A., i, 976.
- 2-Methylenedioxystyryl-8-methyl-quinoline** and its additive salts (HOFFMANN), A., i, 40.
- 3':4'-Methylenedioxy-2:4:6-trimethoxy-benzophenone** (*oxyleucotin*), synthesis of (PERKIN and ROBINSON), P., 306.

- Methylenedi-salicylamide** and its benzoyl derivatives and *-isovaleramide* (EINHORN, SCHUPP, and SPRÖNGERTS), A., i, 248.
- Methylene-green** and its additive salts (GNEHM and WALDER), A., i, 390; (GRANDMOUGIN and WALDER), A., i, 772.
- Methylene group**, suggested name for the, in acyclic molecules (WALLACH), A., i, 195.
- Methylenecycloheptane** (WALLACH and KÖHLER), A., i, 818.
- Methylenecyclohexane** and its oxidation and nitrosochloride and nitrolamine with piperidine (WALLACH and ISAAC), A., i, 564.
- Methylenehippuric acid**, preparation of (CHEMISCHE FABRIK AUF AKTIEN VORM. E. SCHERING), A., i, 499.
- α -Methylenehydantoic acid**, dibromo-, and its methyl ester (GABRIEL), A., i, 635.
- α -Methylenehydantoin**, bromo-, and the action of bromine on (GABRIEL), A., i, 634.
- Methylene hydrocarbons**, of various ring systems, the simplest, and their conversion into alicyclic aldehydes (WALLACH, BESCHKE, EVANS, and ISAAC), A., i, 563; (WALLACH and KÖHLER), A., i, 818.
- Methylenementhone**, hydroxy- (SEMMLER and MCKENZIE), A., i, 374.
- Methylenecyclopentane** and its oxidation and nitrosochloride, and nitrolamine with piperidine (WALLACH), A., i, 563.
- Methylenequinone, tetrabromo-**, and its reactions (ZINCKE and BÖTTCHER), A., i, 167.
- Methylenesuberene** and its oxidation, nitrosochloride, and oxime (WALLACH), A., i, 371.
- Methylene-tannin-acetamide** (VOSWINKEL), A., i, 527.
- Methyl- ψ -ephedrine** and its salts (SCHMIDT and EMDE), A., i, 978.
- $\alpha\alpha$ -Methylethylacetone**. See **Methyl α -methylpropyl ketone**.
- 2-Methyl-1-ethylbenzimidazole**, 4:7-dinitro-6-hydroxy-, synthesis of (MELDOLA), T., 1941.
- 4'-Methyl-5-ethylhydro-2-stilbazole** and its additive salts (LANGER), A., i, 38.
- $\alpha\beta$ -Methylethylethylene**, formation of (WALKER and WOOD), T., 603; P., 104.
- Methylethylfulvene** (THIELE and BALHORN), A., i, 639.
- α -Methyl- β -ethylhydantoin** (GABRIEL), A., i, 636.
- Methylethylmaleic acid**, methyl ester, anhydride and imide of (KÜSTER, GALLER, HAAS, and MEZGER), A., i, 337.
- Methylethylmalonic acid**, methyl ester (MEYER), A., i, 138.
- Methylethylmalonic acid**, methyl ester and amide of (MEYER), A., i, 138; (BÖTTCHER), A., i, 340.
- 2-Methyl-3-ethylpyridine** and its salts (KOENIGS, BERNHART, and IBELE), A., i, 762.
- 2-Methyl-5-ethylpyridine**, condensation of, with aldehydes (LANGER), A., i, 38.
- Methylethylpyruvic acid** and its derivatives, preparation of (LOCQUIN), A., i, 928.
- 4'-Methyl-5-ethyl-2-stilbazole** and its additive salts and **-2-stilbazoline** (LANGER), A., i, 38.
- α -Methyl- α -ethylsuccinic acid**, preparation of (HIGSON and THORPE), T., 1467; P., 242.
- 2-Methyl-5-ethyltetrahydropyridine** and its additive salts (KOENIGS and BERNHART), A., i, 36.
- Methyleugenol oxide** (FOURNEAU and TIFFENEAU), A., i, 20.
- 9-Methylfluorene alcohol** (ULLMANN and v. WURSTEMBERGER), A., i, 76.
- Methylgalipidine** and its hydrochloride and platinichloride (BECKURTS and FRERICHS), A., i, 35.
- β -Methylglutaconic acid**, α -hydroxyethyl ester (FEIST and BEYER), A., i, 335.
- β -Methylglutaconic acids**, *cis*- and *trans*-, and their salts and esters (FEIST and BEYER), A., i, 335, 336.
- and their salts, anilide, and *p*-toluidide (FICHTER and SCHWAB), A., i, 625.
- β -Methylglutaric acid**, bromo-, and $\alpha\beta$ -dibromo-, ethyl esters (FEIST and BEYER), A., i, 335.
- $\alpha\beta$ -dibromo- (FICHTER and SCHWAB), A., i, 625.
- Methylglycol phthalate**, chloro-. See $\alpha\beta$ -Propylene phthalate, γ -chloro.
- Methylglyoxal disemicarbazone** (HARRIES and WEISS), A., i, 228.
- Methyl group**, substitution of the acetyl group by the, by means of diazomethane (HERZIG and TICHATSCHEK), A., i, 481.
- Methylguanidine** (v. GULEWITSCH), A., i, 637.
- occurrence of, in flesh (KRIMBERG), A. ii, 781.

- β -Methylheptane**, $\text{CHMe}_2[\text{CH}_2]_4\text{CH}_3$, secondary alcohols from (HENRY, BUELENS, and MUSER), A., i, 723.
- 1-Methylcycloheptane-2-one.** See Methylsuberone.
- 1-Methyl- Δ^1 -cycloheptene.** See Δ^1 -Methylsuberenene.
- sec.-Methylheptenol**, ozonide of (HARRIES and LANGHELD), A., i, 226.
- p-Methylhexahydroacetophenone** and its semicarbazone (SEMMLER and RIMPEL), A., i, 682.
- Methylhexahydrobenzaldehydes** (*methylcyclohexanealdehydes*). See Hexahydrotolualdehydes.
- 4-Methylcyclohexane-1-isobutyric acid**, 1-hydroxy-, ethyl ester (WALLACH), A., i, 682.
- 1-Methylcyclohexane-3-carboxylic acid** (*hexahydro-o-toluic acid*), 3-amino- (ZELINSKY and STADNIKOFF), A., i, 426.
- 1-bromo-, and 1-hydroxy-, lactone of (PERKIN and TATTERSALL), P., 268.
- 1-Methylcyclohexane-4-carboxylic acid** (*hexahydro-p-toluic acid*), 3-amino-, ethyl ester (KÖTZ and HESSE), A., i, 88.
- α -bromo- and α -hydroxy- (PERKIN), T., 835.
- 1-Methyl-1-cyclohexanol** and **-2-cyclohexanone** (WALLACH), A., i, 176.
- 1-Methyl-4-cyclohexanol-4-acetic acids**, α - and β - (MARCKWALD and METH), A., i, 360.
- 2-Methyl-1-cyclohexanol-1-acetic acid** and its ethyl ester (WALLACH and BESCHKE), A., i, 565.
- 4-Methyl-1-cyclohexanol-1-acetic acid** (WALLACH and EVANS), A., i, 566.
- 1-Methyl-4-cyclohexanone** and its semicarbazone (PERKIN), T., 836.
- synthesis of tertiary alcohols from (SABATIER and MAILHE), A., i, 254.
- 1-Methyl-6-cyclohexanone** and its semicarbazone (BOUVEAULT and CHEREAU), A., i, 513.
- Methylcyclohexanones**, 1:2-, 1:3-, and 1:4-, properties of, and their oximes (WALLACH), A., i, 514.
- condensation of, with ethyl chloroacetate (DARZENS and LEFÉBURE), A., i, 431.
- 1-Methyl-3-cyclohexanone-4-carboxylic acid**, ethyl ester, and its compound with phenylhydrazine (KÖTZ and HESSE), A., i, 88.
- 3-Methyl-2- and -6-cyclohexanone-1-carboxylic acids**, ethyl esters, and their semicarbazones (KÖTZ and MICHELS), A., i, 666.
- 1-Methyl-3-cyclohexanone-4-oxalic acid** and its ethyl ester and their semicarbazones (KÖTZ and HESSE), A., i, 88.
- 3-Methyl-2-cyclohexanone-1-oxalic acid**, ethyl ester (KÖTZ and MICHELS), A., i, 666.
- 1-Methyl- Δ^1 -cyclohexene-2-acetic acid** and its ethyl ester (WALLACH and BESCHKE), A., i, 565.
- 3-Methylcyclohexeneacetic acid**, constitution of, and its amide, dibromide, and nitrile (WALLACH and BESCHKE), A., i, 565.
- 4-Methylcyclohexene-1-acetic acid** and its silver salt (WALLACH and EVANS), A., i, 566.
- 4-Methyl- Δ^1 -cyclohexene-1-isobutyric acid** and its ethyl ester (WALLACH), A., i, 682.
- 1-Methyl- Δ^1 -cyclohexene-3-carboxylic acid** (Δ^1 -tetrahydro-m-toluic acid) (PERKIN and TATTERSALL), P., 269.
- 1-Methyl- Δ^1 -cyclohexene-4-carboxylic acid** (Δ^1 -tetrahydro-p-toluic acid) and its optically active modifications (PERKIN), T., 835; (KAY and PERKIN), T., 840; P., 72.
- d1-Methyl- Δ^1 -cyclohexene-4-carboxylic acid**, ethyl ester, density, magnetic rotation, and refractive power of (PERKIN), T., 852.
- 1-Methyl- Δ^6 -cyclohexene-5-one-2-carboxylic acid**, ethyl ester (Hagemann's ester), tautomerism of (RABE and SPENCE), A., i, 89.
- tert.-Methylhexenol**, ozonide of (HARRIES and LANGHELD), A., i, 226.
- α -Methyl-n- and -iso-heoxic acids**, α -amino-, copper salts and their nitriles, hydrochlorides of (v. GULEWITSCH and WASMUS), A., i, 410.
- 1-Methylcyclohexylamylamine** (WALLACH), A., i, 161.
- 1-Methylcyclohexylidene-4-acetic acid** and its ethyl ester (PERKIN and POPE), P., 107.
- optical isomerides of (PERKIN and POPE), P., 108; (MARCKWALD and METH), A., i, 360, 584, 663.
- Methylhomonarceine** and its ethyl ester and their hydrochlorides (TAMBACH and JAEGER), A., i, 880.
- α -Methylhydantoin**, action of bromine on (GABRIEL), A., i, 634.
- p-Methylhydratropaldehyde** and its semicarbazone (AUWERS), A., i, 963.
- p-Methylhydratropic acid**, α -chloro- (AUWERS), A., i, 963.
- p-Methylhydrocinnamaldehyde** and its semicarbazone (AUWERS), A., i, 962.

- 1-Methylhydrocotarnine**, oxidation of (FREUND and REITZ), A., i, 601.
- 3-Methylhypoxanthine** and thio- (TRAUBE and WINTER), A., i, 390.
- 1-Methylindene-2-carboxylic acid** and its esters (THIELE and RÜDIGER), A., i, 588.
- 1-Methylindene-3-oxalic acid** and its esters and 3- α -hydroxyacetic acid, methyl ester (THIELE and RÜDIGER), A., i, 587.
- 1-Methylindole**, 2:3-dichloro- (MAZZARA and BORGO), A., i, 304.
- 2-Methylindole**, formation of, from quinoline (PADOA and CARUGHI), A., i, 765.
action of hippuryl chloride on (FISCHER and KAAS), A., i, 455.
- 3-Methylindole (scatoles)**, colour reactions of, with aromatic aldehydes and nitrites (STEENSMA), A., ii, 315.
separation of, from indole and their estimation (HERTER and FOSTER), A., ii, 910.
- 6-Methyl-2-irazoline** and its hydrochloride and benzoyl derivative (GASDA), A., i, 41.
- 6-Methylisatin** (FINDEKLEE), A., i, 43.
- Methylmalonic acid (isosuccinic acid)** and its derivatives (MEYER and BOCK), A., i, 726.
derivatives of aniline, *p*-toluidine, and *p*-aminophenol, antipyretic action of (MALERBA), A., ii, 693.
- Methylmalonyl-bis-1-amino-2:5-di-methylpyrrole-3:4-dicarboxylic acid**, ethyl ester, and dihydrazides (BÜLOW and WEIDLICH), A., i, 982.
- 2-Methyl- $\Delta^{6(8)}$ -menthadiene-2-ol** and - $\Delta^{2,6(8)}$ -menthatriene (RUPE and LEICHENHAN), A., i, 374; (KLAGES and SOMMER), A., i, 567.
- Methylmecconine** (SIMONIS, MARBEN, and MERMOD), A., i, 32.
- 2-Methyl-4-methylene-1:4-benzopyranol-3-phthalylaldehydeic acid**, 7:8-dihydroxy-, lactone of, and its additive salts (BÜLOW and DESENISS), A., i, 966.
- 1-Methyl-2-methylenecyclohexane** and its oxidation and *N,N*-osochloride and nitrolamine with piperidine (WALLACH and BESCHKE), A., i, 565.
- 1-Methyl-3-methylenecyclohexane** and its oxidation, and nitrosochloride and nitrolamine with piperidine (WALLACH and BESCHKE), A., i, 566.
- 1-Methyl-4-methylenecyclohexane** (MARCKWALD and METH), A., i, 584, 663.
and its oxidation, and nitrosochloride and nitrolamine with piperidine (WALLACH and EVANS), A., i, 566.
- Methyl α -methylpropyl ketone** and its oxime, phenylhydrazone, and semi-carbazone (COURTOT), A., i, 926.
- Methylmorphimethine**, chloro- and benzoyl derivatives (PSCHORR, KUHTZ, and ROTH), A., i, 878.
hydroxy-, and its derivatives (KNORR and SCHNEIDER), A., i, 449.
- α -Methylmorphimethine**, transformation of, into the β -compound by heat, and their crystallographic behaviour (PSCHORR, ROTH, and TANNHÄUSER), A., i, 204.
- 4-Methyl- α -naphthacoumarin**, azo-derivatives of (HEWITT and MITCHELL), T., 17.
- 1-Methylnaphthalene**, 2:4-diamino-, and its 3-carboxylic acid and its ethyl ester, and their additive salts (ATKINSON and THORPE), T., 1924; P., 282.
- 1:2-Methylnaphtha- ψ -quinol and 6-mono- and 3:6-di-bromo-**, and their acetyl derivatives, and 6-bromo-3-nitro- (FRIES and HÜBNER), A., i, 191.
- 1:2-Methylnaphthaquinonitrole** and 6-mono- and 3:6-di-bromo- (FRIES and HÜBNER), A., i, 191.
- μ -Methyl-1:2-naphthiminazole-7-sulphonic acid**, 5-hydroxy- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 900.
- 1-Methyl- β -naphthindole**, preparation and hydrogenation of, and its sulphonic acid, sodium salt (PSCHORR and KARO), A., i, 886.
- α -Methyl- β -naphthol**, preparation of, and its benzoate and ethyl ether (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 257.
and 6-mono- and 3:6-di-bromo-, and their ethers and acetyl derivatives, and 6-bromo-3-amino-, and its acetyl derivatives, and 6-bromo-3-nitro- (FRIES and HÜBNER), A., i, 191.
- 2-Methylnaphth-peri-oxazole**, tribromo-, and its dibromide (FICHTER and GAGEUR), A., i, 840.
- 1-Methyl- β -naphthylamine** and its sulphate and acetyl derivative (FRIES and HÜBNER), A., i, 191.
- Methylnarceine** and its salts (TAMBACH and JAEGER), A., i, 879.
- Methylnitroamine**. See Methylamine, *N*-nitro-.
- α -Methyloctoic acid**, α -amino-, and its nitrile, hydrochloride of (v. GULEWITSCH and WASMUS), A., i, 410.
- Methyol compounds** of acid amides (EINHORN, BISCHKOPFF, LADISCH, MAUERMAYER, SCHUPP, SPRÖNGERTS, and SZELINSKI), A., i, 245; (EINHORN), A., i, 486.

- 3-Methylisooxazole-4-carboxylic acid**, 5-hydroxy-, ethyl ester (PALAZZO), A., i, 701.
- Methylparaconyltropine** and its additive salts (JOWETT and HANN), T., 361; P., 61.
- 1-Methylcyclopentane-3-carboxylic acid**, 3-amino-, and its copper salt (ZELINSKY and STADNIKOFF), A., i, 425.
- 1-Methylcyclopentane-2:4:5-trione** and its oxime, methyl ether, benzylidene and quinoxaline derivatives, and **3-glyoxylic acid** and its ethyl ester (DIELS, SIELISCH, and MÜLLER), A., i, 438.
- Methylpentenedicarboxylic acid** and its ethyl ester (VORLANDER, WEISSHEIMER, and SPONNAGEL), A., i, 366.
- Methylpentenol** (COURTOT), A., i, 789.
- 1-Methyl-phenanthrene** and **-phenanthraquinone** (PSCHORR and HOFMANN), A., i, 849.
- 3-Methylphenanthrene** and its dibromide (PSCHORR and QUADE), A., i, 849.
- 6-Methylphenanthrene-9-carboxylic acid** (PSCHORR and QUADE), A., i, 849.
- 8-Methylphenanthrene-9-carboxylic acid** (PSCHORR and HOFMANN), A., i, 849.
- 2-Methylphenyl** dichloro-orthophosphate, ω -trichloro-4:6-dibromo- (ANSCHÜTZ and ROBITSEK), A., i, 503.
4-chloro- ω -trichloro- (ANSCHÜTZ and ANSPACH), A., i, 503.
 ω -trichloro-4:6-diido- (ANSCHÜTZ, ROBITSEK, and SCHMITZ), A., i, 504.
orthophosphate, 4:6-dichloro- ω -dichloro- (ANSCHÜTZ and MEHRING), A., i, 501.
- 4-Methylphthalic acid**, preparation of, and isoquinoline derivatives from (FINDEKLEE), A., i, 42.
- α -Methylphthalide** (SIMONIS, MARBEN, and MERMOD), A., i, 32.
- 4-Methylphthalimoglycine** and its salts and ester (FINDEKLEE), A., i, 42.
- Methylphthalonamic acid** (FINDEKLEE), A., i, 43.
- Methylphthalonic acid** (FINDEKLEE), A., i, 43.
- 7-Methylphthalonimide** (FINDEKLEE), A., i, 43.
- 4-Methylpicolyl-p-tolylalkine.** See 4:4'-Dimethyl dihydrostilbazole, β -hydroxy-.
- Methylpicraconitine** and its hydrobromide and hydrochloride (SCHULZE), A., i, 599.
- Methylpropenylcarbinol** and its acetate and phenylcarbamate (COURTOT), A., i, 926.
- 2-Methyl-5-isopropenylhexahydroisophthalic acid** (LAPWORTH), T., 1825; P., 285.
- 1-Methyl-4-isopropenylcyclohexanone-2,6-cyano.** See Dihydrocarvone, cyano-
- 2-Methyl-5-isopropenyl- Δ^2 -tetrahydroisophthalic acid** and its reduction (LAPWORTH), T., 1823; P., 285.
- α -Methyl-8-isopropyladipic acid.** See Dihydrocamphoric acid.
- Methylpropylaniline**, 2:4-dinitro-, synthesis of (MULDER), A., i, 491.
- Methylisopropylaniline**, preparation of (THOMAS and JONES), T., 287.
- Methylisopropylbenzylamine**, 3-hydroxy-, N-acyl derivatives of (EINHORN, BISCHKOPFF, SZELINSKI, SCHUPP, and MAUERMAYER), A., i, 246.
- 2-Methyl-5-isopropylbenzylidenerhodanic acid**, 4-hydroxy (BARGELLINI), A., i, 536.
- 1-Methyl-4-isopropylcyclohexane-3-one-4-carboxylic acid**, ethyl ester, and its semicarbazone (KÖRTZ and HESSE), A., i, 88.
- 3-Methyl-1-isopropylcyclohexane-2- and -6-one-1-carboxylic acids**, ethyl esters and their semicarbazones (KÖRTZ and MICHELS), A., i, 666.
- Methyl isopropyl ketone**, *p*-tolylhydrazone of, constitution of the indoline base from (KONSCHEGG), A., i, 452.
- Methyl-n- and -iso-propylmaleic acids**, salts and anhydrides of (KÜSTER and HAAS), A., i, 693.
- Methylpropylmaleimides**, *n*- and *iso*- (KÜSTER and HAAS), A., i, 694.
- Methyl-n- and -iso-propylsuccinic acids** (KÜSTER and HAAS), A., i, 694.
- 8-Methylpurine** and its additive salts (ISAY), A., i, 218.
- 1-Methylpyrazole**, 4-chloro- (MAZZARA and BORGIO), A., i, 702.
- 4-Methylpyrazole-3:5-dicarboxylic acid** and its ethyl ester (FEIST), A., i, 332.
- 2-Methylpyridine.** See α -Picoline.
- Methylpyridine-4-carboxylic acids**, 3- and 5-, 2:6-dihydroxy-. See Methylcitrazinic acids.
- 3-Methylpyrimidine**, 4:5-diamino-2:6-dihydroxy- (MERCK), A., i, 536.
- 2-Methyl-6-pyrophthalone** and its sodium salt (SCHOLZE), A., i, 33.
- Methylquinaldines**, *o*- and *p*. See 2:8- and 2:6-Dimethylquinolines.
- 2-Methylquinazoline**, 5-amino-4-hydroxy-. See 4-Keto-2-methyldihydroquinazoline, 5-amino-.

- 8-Methylquinazolone.** See 4-Keto-8-methyldihydroquinazoline.
- 2-Methylquinoline** (*quinaldine*), reaction of, with benzaldehyde in sunlight (BENRATH), A., i, 535.
- nitro-derivatives, condensation of, with aldehydes (SCHMIDT), A., i, 39.
- 8-Methylquinoline**, halogen and nitro-derivatives (HOWITZ and NÖTHER), A., i, 885.
- 7-Methylisoquinoline** and 1-chloro-, and their additive salts (FINDEKLEE), A., i, 43.
- 6 (or 7)-Methylquinoxaline-2-benzoic acid**, 3-hydroxy-, and its lactone and imino-compound (MANUELLI and MASELLI), A., i, 308.
- Methylrhamnoside**, the methylation of (PURDIE and YOUNG), T., 1201; P., 201.
- 3-Methylsalicylic acid.** See *m*-Toluic acid, 3-hydroxy-.
- 4-Methylsalicylic acid.** See *p*-Toluic acid, 3-hydroxy-.
- 5-Methylsalicylic acid.** See *m*-Toluic acid, 4-hydroxy-.
- 3-Methylsalicyl-phosphorous chloride** and -phosphoric chloride dibromide (ANSCHÜTZ, SCHROEDER, WEBER, and ANSPACH), A., i, 506.
- 4-Methylsalicyl-phosphorous chloride** and -phosphoric chloride dibromide (ANSCHÜTZ and SCHROEDER), A., i, 506.
- 5-Methylsalicyl-phosphorous chloride** and -phosphoric chloride dibromide (ANSCHÜTZ and SCHROEDER), A., i, 507.
- Methylscopoline** and its aurichloride (SCHMIDT), A., i, 104.
- m*-**Methyl-2-stilbazole** and its dihydro-derivative and their salts, and -2-stilbazoline (FREUND), A., i, 883.
- 4-Methyl-4-stilbazole** and its dihydro-derivative and their salts, and -4-stilbazoline (FREUND), A., i, 883.
- 8-Methylstilbene**, 5-nitro- (PSCHORR and QUADE), A., i, 849.
- m*-**Methylstilbene-*o*-carboxylic acid** and its silver salt (LIECK), A., i, 49.
- 2-p-Methylstyryl-6-methylquinoline** and its hexahydro-derivative and their additive salts (GASDA), A., i, 42.
- 2-p-Methylstyrylquinoline**, 5- and 8-nitro-, and their additive salts (SCHMIDT), A., i, 39.
- 1-Methylsuberol**, Δ^1 -**Methylsuberenene** and its nitrosate, nitrosochloride, and nitrolamine, and **Methylsuberone** and **Methylsuberonone** and their semi-carbazones (WALLACH), A., i, 370.
- Methylsuccinic acid**, preparation of (HIGSON and THORPE), T., 1462; P., 242.
- Methyltartaric acid**, hydroxy-, and its brucine salts (VONGERICHTEN and MÜLLER), A., i, 143.
- β -Methyltaurine**, formation of (YOUNG and CROOKES), T., 71.
- and bromo-, and its potassium salt (GABRIEL and COLMAN), A., i, 889.
- Methyltetrahydrobenzene.** See **Methylcyclohexene**.
- 2-Methyltetrahydrofuran**, trichloro- (HAMONET), A., i, 138.
- Methyltetrahydrocyclohexenealdehydes.** See **Tetrahydrotolualdehydes**.
- 2-Methylthio-3-*p*-tolyl-6-methyl-3:4-dihydroquinazoline** and its additive salts (V. WALTHER and BAMBERG), A., i, 387.
- Methylthioncarbamic acid**, phenyl ester (RIVIER), A., i, 948.
- 3-Methylthiophen**, influence of light and heat on the bromination and chlorination of (OPOLSKI), A., i, 34.
- Methyl-*o*-toluidine**, bromo-derivatives and their perbromides (FRIES), A., i, 647.
- 3-Methyl-*o*-tolyl dichloro-orthophosphate**, trichloro- (ANSCHÜTZ, SCHROEDER, WEBER, and ANSPACH), A., i, 506.
- 4-Methyl-3-tolyl dichloro-orthophosphate**, trichloro- (ANSCHÜTZ and SCHROEDER), A., i, 506.
- α -Methyltricarballylic acids**, isomeric (ANSCHÜTZ and DESCHAUER), A., i, 728.
- Methyltrimethyldicarboxylic acid** (FEIST and BEYER), A., i, 335.
- Methyluracil**, acidic constants of (WOOD), T., 1833.
- 3-Methyluracil**, 4-amino-2-thio-. See 6-Oxy-3-methylpyrimidine, 4-amino-2-thio-.
- 3-Methylxanthine** (TRAUBE and NIETHACK), A., i, 215.
- 7-Methylxanthine.** See **Heteroxanthine**.
- Methyl-1:3:5-xylidine**, 2-bromo-4:6-dinitro, 6-bromo-2:4-dinitro-, and 2:4- and 4:6-dinitro- (BLANKSMA), A., i, 11.
- Mica**, fluorescence of, caused by radiotellurium (GREINACHER), A., i, 410. as manure (PRIANISCHNIKOFF), A., ii, 47.
- Michler's ketone**, action of Grignard's reagents on (FREUND and MAYER), A., i, 384.
- Micro-organisms**, culture of, in definite chemical media (GALIMARD, LACOMBE, and MOREL), A., ii, 695. action of compressed gases on the life of (FOÄ), A., ii, 696.

Micro-organisms, oxidation of hydrogen by (KASERER), A., ii, 113, 697.
of natto (SAWAMURA), A., ii, 880.
from the excrement of pigeons (ULPIANI and CINGOLANI), A., ii, 189.
See also *Bacteria* and *Yeasts*.

Microscope, ultra-. See Ultramicroscope.

Milk, various, comparison of the caseinogen of (ABDERHALDEN and SCHITTENHELM), A., ii, 467.
index of oxidation of (COMANDUCCI), A., ii, 636.
human, calcium and phosphorus of (SIKES), A., ii, 874.
the Baudois reaction in the fat of (ENGEL), A., ii, 243.
estimation of proteids in (SIKES), A., ii, 912.
human and cows', action of, on hydrogen peroxide (VAN ITALLIE), A., ii, 316, 461.
cows', composition of (RICHMOND), A., ii, 588.
effect of different fats on the production of (BEGER), A., ii, 563.
action of single foods on the production of (MORGAN, BEGER, and FINGERLING), A., ii, 563.
is the passage of food-fat into, proved by Winternitz's experiments with iodised fats? (GOGITIDSE), A., ii, 295.
the stimulus to the secretion of (HEAPE), A., ii, 242.
effects of foods, both rich and poor in fat, in conjunction with various foods on the secretion of (FINGERLING), A., ii, 622.
bacteriology of (MACCONKEY), A., ii, 699.
influence of carbon dioxide under high pressure on the bacteria in (HOFFMANN), A., ii, 695.
proteinase in, preserved by means of formaldehyde (TICE and SHERMAN), A., ii, 376.
fermentation of (BLUMENTHAL and WOLFF), A., ii, 879.
spontaneous heat formation in, and the lactic acid fermentation (RUBNER), A., ii, 568.
the coagulation which occurs on boiling faintly acid (v. SOXHLET), A., ii, 467.
action of rennin on (REICHEL and SPIRO), A., i, 127.
influence of added substances on the rennin coagulation of (SMELENSKY), A., ii, 874.
taint in, due to contamination with copper (GOLDING and FEILMANN), A., ii, 205.

Milk, cows', rapidity of absorption of odours by (BORDAS and TOUPAIN), A., ii, 467.
treated with hydrogen peroxide, reactions of (ADAM), A., ii, 295.
behaviour of, to magenta-sulphurous acid solution (EICHHOLZ), A., ii, 59.
reduction of methylene-blue by (CATHCART), A., ii, 700.
occurrence of cholesterol and lecithin in (SIEGFELD), A., ii, 204.
amount of lecithin in (KOCH), A., ii, 467.
the soluble proteids of (LINDET and AMMANN), A., ii, 562.
amount of glycine in the proteids of (ABDERHALDEN and HUNTER), A., i, 545.
reductases of (SELIGMANN), A., ii, 467.
streptococci and leucocytes in (SAYAGE), A., ii, 298.
abnormal, bacteriological examination of some samples of (BURRI and DÜGGLI), A., ii, 189.
condensed vegetable (KATAYAMA), A., ii, 889.
dried, analysis of (RICHMOND), A., ii, 637.
importance of the determination of the freezing point in the examination of (BONNEMA), A., ii, 710.
the "aldehyde" value of (STEININGER), A., ii, 130; (RICHMOND and MILLER), A., ii, 634.
method of analysis of, used in the Government Laboratory for samples referred under the Sale of Food and Drugs Acts (RICHMOND and MILLER), A., ii, 813.
detection of formaldehyde in (EICHHOLZ), A., ii, 59; (ACREE), A., ii, 906.
detection, estimation, and rate of disappearance of formaldehyde in (WILLIAMS and SHERMAN), A., ii, 206.
use of Schiff's reagent for the detection of formaldehyde in (UTZ), A., ii, 206.
detection of salicylic acid in (GORNI), A., ii, 313.
estimation of boric acid in (CRIBB and ARNAUD), A., ii, 394.
estimation of fat in (v. KÜTTNER and ULRICH; BEGER), A., ii, 313; (FAHRION), A., ii, 402.
experiments with Röhrig's modification of the Gottlieb-Röse apparatus for the estimation of fat in (GOR DAN), A., ii, 501.

- Milk**, comparison of the estimation of fat in, by Gottlieb's and Gerber's methods and by Wollny's refractometer (SCHROTT-FIECHTL), A., ii, 204.
influence of cholesterol and lecithin in the estimation of fat in, by Gottlieb's method (SIEGFELD), A., ii, 204.
estimation of fat in, by Sichler's sinacid-butyrometer (LOTTERHOS; BEGER), A., ii, 181.
estimation of hydrogen peroxide in, and the preservation of milk by it (AMBERG), A., ii, 122.
unification of the methods of estimating lactose in (PATEIN), A., ii, 904.
estimation of proteids in (TRILLAT and SAUTON), A., ii, 591.
influence of the addition of acetic acid or alcohol to, in the estimation of total solids (SEGIN), A., ii, 314.
See also Colostrum.
- Milk-sugar**. See Lactose.
- Mimetite**. See Petterdite.
- Mineral**, new, from Elba (D'ACHIARDI), A., ii, 773.
of the zeolite group, from Hainburg, Lower Austria (PAULY), A., ii, 773.
which retards the discharge of an electroscope (BÜCHNER), A., ii, 645.
- Minerals** from America, analyses of (EYERMAN), A., ii, 774.
from British Central Africa, A., ii, 684.
from Gellivare, Sweden (BYGDÉN), A., ii, 38.
from Montreal, composition of (HARRINGTON), A., ii, 866.
Norwegian and Swedish, radioactivity of, A. E. Nordenskiöld's investigations on (SJÖGREN), A., ii, 64.
from Otavi, German S. W. Africa (SCHNEIDER), A., ii, 620.
from the granite of S. Fedelino (Lake Como) (REPOSSI), A., ii, 621.
found in the excavations of the Tell Acropolis of Susa in Persia (BERTHELOT and ANDRÉ), A., ii, 230.
from Val d'Aosta (MILLOSEVICH), A., ii, 368.
bituminous, estimation of sulphur in (GARRETT and LOMAX), A., ii, 123.
lime-silica series of (DAY and SHEPHERD), A., ii, 770.
of the composition, $MgSiO_3$; a case of tetramorphism (ALLEN, WRIGHT, and CLEMENT), A., ii, 865.
acid and alkaline reaction of (CORNU), A., ii, 770.
- Minerals**, determination of the melting points of, by optical methods (DOELTER), A., ii, 726.
- Mineral acids**. See under Acids.
- Mineral oil**, optical activity and origin of (WALDEN), A., ii, 368.
the iodine value of (GRAEFE), A., ii, 56.
See also Petroleum.
- Mineral pitch**. See Pitch.
- Mineral waters**. See under Water.
- Mineralogical character**, loss on ignition as a (GOLDSCHMIDT; GOLDSCHMIDT and HERMANN), A., ii, 237.
- Mispickel** from the tourmaline lodes of the granite of S. Piero in Campo (Elba) (D'ACHIARDI), A., ii, 555.
- Mixtures**, contributions to the theory of (VAN DER WAALS), A., ii, 339.
binary, vapour pressures of (MARSHALL), T., 1850; P., 154.
- Molasses**, removal of dextrose from, by fermentation (H. and L. PELLET and PAIRAUPT), A., ii, 383.
beet, estimation of protein nitrogen in (STUTZER and v. WOLOSEWICZ), A., ii, 912.
cane, fermentation of, and its bearing on the estimation of the sugars present (HARKER), A., ii, 810.
- Molasses furnace**, carbostyrol as a by-product in a (v. LIPPmann), A., i, 38.
- Molecular aggregation of liquefied gases** (HUNTER), A., ii, 524.
arrangement in aqueous mixtures of the lower alcohols and acids of the paraffin series, nature of the (HOLMES), T., 1774; P., 272.
attraction (MILLS), A., ii, 216.
complexity in the liquid state (HOLMES), T., 1774; P., 272.
conductivities of acids, bases, and salts (BLACKMAN), A., ii, 647.
of phosphoric esters (CARRÉ), A., ii, 4.
constitution of a gas and the quantitative relation of its specific heat (BLACKMAN), A., ii, 331.
of aqueous solutions (SUTHERLAND), A., ii, 603.
weights. See Weights, molecular.
- Molecules**, liquid, magnitude of, of certain organic compounds (CARRARA and FERRARI), A., ii, 599.
- Mollusca**, physiology of (MENDEL and BRADLEY), A., ii, 782.
the digestive gland in (ROAF), A., ii, 779.
- Molybdic acid**. See under Molybdenum.
- Molybdenum**, preparation of fused (BILTZ and GÄRTNER), A., ii, 860.
boiling and distillation of (MOISSAN), A., ii, 232.

- Molybdenum alloys** with boron (BINET DU JASSONNEIX), A., ii, 677.
 with manganese, constituents of (ARRIVAUT), A., ii, 676, 758.
- Molybdenum compounds** with iron (VIGOUROUX), A., ii, 364.
- Molybdenum salts**, compounds of, with pyridine and quinoline (ROSENHEIM and Koss), A., i, 603.
- Molybdenum pentachloride** action of nitrogen sulphide on (DAVIS), T., 1577; P., 261.
- dioxide, reduction of, by boron (BINET DU JASSONNEIX), A., ii, 677.
- Molybdic acid**, electrolytic reduction of, in acid solutions (CHILE-SOTTI), A., ii, 263, 365.
 reduction of, in thiocyanic acid solution (SAND and BURGER), A., i, 487.
 dihydrate of (ROSENHEIM), A., ii, 762.
- Polymolybdates**, hydrolysis of (SAND), A., ii, 528.
- Molybdenum sulphide**, native, analysis of (GILBERT), A., ii, 707.
- Monazitic sand** from Queensland, A., ii, 370.
- Moravite**, composition of (KRETSCHMER), A., ii, 458.
- Morin**, synthesis of, and its trimethyl ether (v. KOSTANECKI, LAMPE, and TAMBOR), A., i, 301.
- Moringa pterygosperma*, seeds and oil of (VAN ITALLIE and NIEUWLAND), A., ii, 386.
- Morphenol**, conversion of, into trihydroxyphenanthrene (VONGERICHTEN and DITTMER), A., i, 422.
- Morphine** (KNORR and HÖRLEIN), A., i, 449, 877.
 constitution of (FALTIS), A., i, 979.
 conversion of, into its optical isomericides (LEES and TUTIN), P., 253.
 action of gum arabic on (FIRBAS), A., i, 529.
 alkyl ethers. See Codeine and Codeyline.
 metho- and etho-bromides (RIEDEL), A., i, 530.
 reaction for (REICHARD), A., ii, 637; (RADULESCU), A., ii, 638.
 estimation of, colorimetrically (GEORGES and GASCAUD, A., ii, 507; (MAI and RATH), A., ii, 817).
- Morphine**, halogen derivatives, and their degradation (PSCHORR, KUHTZ, ROTH, and VOGTHERR), A., i, 877.
- apoMorphine*, constitution of (PSCHORR and KARO), A., i, 878.
 salts (RIEDEL), A., i, 692.
- Moser rays**. See under Photochemistry.
- Mountain ash berries**, seeds and oil of (VAN ITALLIE and NIEUWLAND), A., ii, 573.
- Mucous membrane**, nasal, composition of (RUSSELL and GIES), A., ii, 184.
- Mud volcanoes** of Roumania, gases in the (COSTACHESCU), A., ii, 618.
- Muraenesox cinereus*, nucleic acid from the spermatozoa of (INOUE), A., i, 775.
- Murexide**, constitution of (MÖHLAU and LITTER), A., i, 611.
- Muscle**, survival respiration of (KEMP and HAYHURST), A., ii, 178.
post-mortem disappearance of glycogen in (KISCH), A., ii, 562.
 proteids of. See under Proteids.
 cardiac and skeletal, relation of the inorganic salts of blood to the contractions of (MARTIN), A., ii, 461.
 cardiac, effect of chloral hydrate on (SCHULTZ), A., ii, 686.
 plain, action of alkaloids on the spontaneous movements of (BECK), A., ii, 111.
 skeletal, influence of osmotic pressure on the irritability of (MEEK), A., ii, 872.
 smooth, physiology of (MOSZO), A., ii, 466.
 striped, influence of temperature on, and its relation to chemical reaction velocity (BURNETT), A., ii, 872.
 of horses and oxen, the intramuscular and extramuscular fat of the principal (HEFELMANN and MAUZ), A., ii, 316.
 of oxen, physiological action of bases from (KUTSCHER and LOHMANN), A., ii, 877.
- Muscle extracts** (v. GULEWITSCH), A., i, 637; (KRIMBERG), A., ii, 781, 872.
- Muscular work** and proteid metabolism (SAWJALOFF), A., ii, 561.
- Musk**, natural, aroma of (WALBAUM), A., i, 595.
- Muskone** and its oxime and semicarbazone (SCHIMMEL & Co.), A., i, 525; (WALBAUM), A., i, 595.
- Mustard**, calorimetric assay of (MANSIER), A., ii, 640.
- Mutarotation**. See under Photochemistry.
- Mycoderma saprogenes sake* (TAKAHASHI), A., ii, 880.
- Myco-nucleic acids**. See Nucleic acids from yeast.
- Myelin bodies** (ADAMI and ASCHOFF), A., i, 1000.
- Myo-albumin** and serum-albumin, distinction between (DE REY-PAILHADE), A., i, 998, 999.

- Myrcene**, formula of (ENKLAAR), A., i, 377.
Myrcenol and its phenylurethane (ENKLAAR), A., i, 377.
Myrrh, oil of (LEWINSOHN), A., i, 972.
 heerabol (TSCHIRCH and BERGMANN), A., i, 197.
Myrrha electa, constituents of (TSCHIRCH and BERGMANN), A., i, 197; (LEWINSOHN), A., i, 972.

N.

- Naphthabenzaldehydine-7-sulphonic acid**, 5-hydroxy-, and its 3':5'-diamino-derivative (CASSELLA & Co.), A., i, 989.
Naphthacenediquinone derivatives (VOSWINKEL), A., i, 99.
Naphthacenequinone, aminohydroxy- and hydroxy-derivatives (BENTLEY, FRIEDL, THOMAS, and WEIZMANN), P., 324.
 and its chloro-, chlorobromo-, hydroxy-amino- and hydroxybromo-derivatives (ORCHARDSON and WEIZMANN), T., 115.
isoNaphthacridine (*bisindinaphthacridine dihydride*), Morgan's (SENIER and AUSTIN), T., 1398.
Naphthacridines, amino-, syntheses of (ULLMANN and BÜHLER), A., i, 44.
 α -**Naphtha-flavone**, -flavanol and its acetyl derivative, and -flavanone and its bromo- and isonitroso-derivatives (WOKER), A., i, 447.
 β -**Naphthaldehyde**, synthesis of, and its bisulphite compound, phenylhydrazone, semicarbazone, and azine, and dinitro-derivative (MONIER-WILLIAMS), T., 275; P., 22.
Naphthalene diazonide (HARRIES and WEISS), A., i, 228.
 estimation of, in coal gas (DICKENSON-GAIR), A., ii, 201.
Naphthalene, amino-. See Naphthylamines.
 diamino-. See Naphthylenediamines.
 4- and 2-hydroxy-. See α - and β -Naphthols.
 1:8-dihydroxy-, monomethyl ether of (FICHTER and GAGEUR), A., i, 841.
 1:3:6-trihydroxy-, and its polymeride, and their acyl derivatives (MEYER and HARTMANN), A., i, 19.
 1:2-dinitro-, constitutional formula of, and its dinitro-derivative (PONZIO), A., i, 491.
Naphthaleneazoisoeugenols, α - and β - (PUXEDDU), A., i, 774.

- Naphthalenediacridines**, 2:3- and 2:7-, 3':3''-diamino- (BAEZNER, GUEORGUEFF, and GARDIOL), A., i, 901.
Naphthalenediazo-. See Diazonaphthalene.
Naphthalene-1:8-dicarboxylic acid. See Naphthalic acid.
Naphthalene series, steric hindrance in the (SMITH), T., 1505; P., 236.
Naphthalene- β -sulphonic acid, methyl ester, and its rotation (PATTERSON and FREW), T., 332; P., 19.
Naphthalic acid, ethyl ester, crystallography of (RANFALDI), A., i, 664.
Naphthalic anhydride, sulphonic derivatives of (BARGELLINI), A., i, 184.
1:2-Naphthamethylenequinone (β -naphthoquinone 1-methide) and 6-bromo- (FRIES and HÜBNER), A., i, 191.
Naphthaphenazine, oxidation of, by chromic acid (FISCHER and SCHINDLER), A., i, 609.
1:2-Naphthaquinolnil (A. and H. v. EULER), A., i, 370.
 α -**Naphthaquinoline** and its amino- and nitro-derivatives and their additive salts (HAID), A., i, 605.
 α -**Naphthaquinone**, 5-hydroxy-. See Juglone.
Naphthaquinoneanilis, formation of, from nitrosobenzene (v. EULER), A., i, 369; (A. and H. v. EULER), A., i, 370.
1:4-Naphthaquinone-p-toluidide (v. EULER), A., i, 369.
Naphthathioxin and its dioxide (MAUTHNER), A., i, 448.
Naphthiminazoles, hydroxy-, and their azo-derivatives (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 900.
Naphthionic acid, acylation of (SCHROETER and RÖSING), A., i, 416.
Naphthoic acid, α -dithio-. See α -Naphthylcarbithionic acid.
1-Naphthoic acid, 4-bromo- (HOUBEN), A., i, 21.
 2-hydroxy- (β -naphthol-1-carboxylic acid) (TIJMSTRA and EGGINK), A., i, 179.
2-Naphthoic acid, 1-hydroxy-, and its derivatives, and the action of phosphorus pentachloride on (ANSCHÜTZ, WEBER, and RUNKEL), A., i, 508.
 action of diazo-compounds on, and its 4-amino-derivative (GRANDMOUGIN), A., i, 997.
Naphthoic acids, reduced optically active (PICKARD and YATES), T., 1101, 1484; P., 202, 244.
 α -**Naphthol**, condensation of, with benzophenone chloride (CLOUGH), T., 773; P., 109; (SHRIMPTON), A., i, 659.

- α -Naphthol**, 2-amino-, diacetyl and N -acetyl derivatives (GRANDMOUGIN), A., i, 717.
- 4- and 5-amino-, and their dibenzoyl derivatives (SACHS, APPENZELLER, HEROLD, MYLO, SCHÄDEL, and SUTTER), A., i, 830; (SACHS), A., i, 949.
- 8-amino-, and its acyl, nitroso- and nitro-derivatives and 2:8-diamino-, and its benzylidene and triacetyl derivatives (FICHTER and GAGEUR), A., i, 839.
- 4:8-diamino-, acetyl derivatives of (FICHTER and GAGEUR), A., i, 840.
- 4-chloro-, preparation of (KALLE & Co.), A., i, 659.
- β -Naphthol**, reaction between formaldehyde, hydroxylamine, and (BETTI), A., i, 653.
- action of phosphorus pentachloride on (BERGER), A., i, 81.
- derivatives, mobility of substituents in (HEWITT and MITCHELL), T., 1167; P., 170.
- β -Naphthol**, α -amino-, N -formyl derivative (FISCHER and RÖMER), A., i, 541.
- 2-, 3-, 4-, 5-, 6-, 7-, and 8-amino-, mono- and di-acyl derivatives of (SACHS, APPENZELLER, HEROLD, MYLO, SCHÄDEL, and SUTTER), A., i, 829; (SACHS), A., i, 949.
- bromo-, acetyl derivative of (HEWITT and MITCHELL), T., 1173; P., 171.
- 1-chloro-4-bromo-, preparation of (MELDOLA and DALE), P., 157.
- nitroso-, action of nitric acid on (HEWITT and MITCHELL), T., 1172; P., 171.
- Naphthols**, α - and β -, and their sodium derivatives, condensation of, with benzophenone chloride (CLOUGH), T., 771; P., 109.
- amino-derivatives, preparation of (SACHS, APPENZELLER, HEROLD, MYLO, SCHÄDEL, and SUTTER), A., i, 829; (SACHS), A., i, 949.
- Naphthol-p-azo-o-nitrobenzaldehyde** (SACHS and KANTOROWICZ), A., i, 908.
- β -Naphthol-1-carboxylic acid**. See 1-Naphthoic acid, 2-hydroxy-.
- β -Naphtholmethylene-amine and hydroxylamine**, dibenzoyl derivative (BETTI), A., i, 654.
- 2-Naphthol-8-sulphonic acid**, 1-bromo-, sodium salt (SMITH), T., 1511; P., 236.
- 3-Naphthonitrile**, 2:4-dinitro-1-hydroxy- (BORSCHE and GAHRTZ), A., i, 957.
- Naphthoxazoles**, α - and β -, and their derivatives (FISCHER and RÖMER), A., i, 541.
- β -Naphthoxide**, sodium, preparation of (TJIMSTRA and EGGINK), A., i, 179.
- 1-Naphthoxyanthraquinones**, α and β - (erythroxyanthraquinone naphthyl ethers) (LAUBE), A., i, 598; (DECKER and LAUBE), A., i, 689.
- β -Naphthoylacetic acid**, ethyl ester, and its hydrazone (WEIZMANN and FALKNER), T., 122.
- β -Naphthoylacetoacetic acid**, ethyl ester, preparation and reactions of (WEIZMANN and FALKNER), T., 123.
- Naphthoylbenzoic acid** and its chlorobromo-, hydroxybromo-, and hydroxy-nitro-derivatives (ORCHARDSON and WEIZMANN), T., 115.
- α -Naphthyl** benzyl selenide (TABOURY), A., i, 834.
- β -Naphthylacrylic acid**, preparation of (MONIER-WILLIAMS), T., 277; P., 22.
- α -Naphthylamides** of fatty sulphonic acids, abnormality in melting points of (DUGUET), A., i, 475.
- Naphthylamine**, α - N -alkylated, derivatives of (MELDOLA), T., 1434; P., 245.
- 1-Naphthylamine**, 4-bromo-2-nitro-, diazotisation of (MELDOLA and DALE), P., 156.
- 5- and 8-nitro-, preparation of (MORGAN and MICKLETHWAIT), T., 7.
- Naphthylamines**, α - and β -, compounds of, with nickel thiocyanate (GROSSMANN and SCHÜCK), A., i, 630.
- compounds of, with trinitrobenzene and the influence of substituents on (SUDBOROUGH and PICTON), T., 583; P., 84.
- 1-Naphthylamine-4-sulphonic acid**. See Naphthionic acid.
- 2- α - and - β -Naphthylaminobenzophenones**, 3:5-dinitro- (ULLMANN and BRODO), A., i, 189.
- Naphthylaminoisobutyronitriles** and their amides, α - and β - (BUCHERER and GROLÉE), A., i, 350.
- β -Naphthylaminophenylacetic acid** and amide (BUCHERER and GROLÉE), A., i, 351.
- α -Naphthylcarbithionic acid** and its salts (HOUBEN and POHL), A., i, 847.
- Naphthyldimethylsulphine platinichlorides**, α - and β - (KEHRMANN and DUTENHÖFER), A., i, 949.
- 1-3-Naphthlenediamine** and its 2-carboxylic acid and its ethyl ester and their salts (ATKINSON and THORPE), T., 1920; P., 282.

- 1:8-Naphthylendiamine**, dibenzoyl and ethyldene derivatives of (SACHS, APPENZELLER, HEROLD, MYLO, SCHÄDEL, and SUTTER), A., i, 830.
- 9- α -Naphthylfluorene** and its alcohol (ULLMANN and v. WURSTEMBERGER), A., i, 77.
- α -Naphthylhydantoic acid** (NEUBERG and FEDERER), A., i, 806.
- 1- α -Naphthylhydrocotarnine** and its hydrobromide (FREUND and REITZ), A., i, 601.
- β -Naphthylideneaniline** (MONIER-WILLIAMS), T., 276.
- Naphthylidenebisphenylmethylpyrazolone**, β -hydroxy- (BETTI and MUNDICI), A., i, 544.
- Naphthylmethylamine**, β -hydroxy-, N -acyl derivatives of (EINHORN, BISCHKOPFF, SZELINSKI, and LADISCH), A., i, 247.
- β -Naphthylmethylamine** and its salts (PSCHORR and KARO), A., i, 886.
- 1-Naphthyl-2-methylbenzimidazoles**, α - and β -, 4:7-dinitro-6-hydroxy-, synthesis of (MELDOLA), T., 1942.
- β -Naphthylpropionic acid**, preparation of (MONIER-WILLIAMS), T., 277.
- β -Naphthylsuccinic acid**, ethyl ester (MEYER and v. LUTZAU), A., i, 765.
- Narceine** and its salts and *apo*Narceine (TAMBACH and JAEGER), A., i, 879.
- Narcotics**, action of (BROWN), A., ii, 105.
- Natrolite** from Montreal (HARRINGTON), A., ii, 867.
- Natto**, micro-organisms of (SAWAMURA), A., ii, 880.
- Natural waters**. See under Water.
- Neobrasic acid** (HESSE), A., i, 282.
- Neodymium**, arc spectra of (BERTRAM), A., ii, 410.
- Neodymium salts** (MATIGNON), A., ii, 675.
- chloride, absorption spectra of (RECH), A., ii, 410.
- action of ammonia gas on anhydrous (MATIGNON and TRANNOY), A., ii, 449.
- and lanthanum and prasedymium chlorides, physiological action of (DRYFUSS and WOLF), A., ii, 473.
- Neon**, presence of, in the gases of thermal springs (MOUREU and BIQUARD), A., ii, 685.
- Nephelite-syenite** from Montreal (HARRINGTON), A., ii, 866.
- Nephelometer**, use of the (WELLS), A., ii, 252, 492; (RICHARDS), A., ii, 493.
- Nerol**, natural and artificial, identity of (v. SODEN and TREFF), A., i, 522.
- preparation of (HEINE & Co.; ZIETSCHEL), A., i, 521.
- and its tetrabromide, preparation of (v. SODEN and TREFF), A., i, 295.
- Nerve cells**, metabolism and action of (SCOTT), A., ii, 239.
- effect of cerebral anaemia on (HILL and MOTT), A., ii, 240.
- and fibres, distribution of chlorides in (MACALLUM and MENTEN), A., ii, 182; (ACHARD and AYNAUD), A., ii, 561.
- Nerve degeneration**, chemistry of (KOCH and GOODSON), A., ii, 183.
- Nerve-endings**, reaction of, to certain poisons (LANGLEY), A., ii, 111.
- Nerve fibres**, narcotising effect of magnesium salts on (MELTZER and AUER), A., ii, 473.
- Nerves**, a molecular theory of the electric properties of (SUTHERLAND), A., ii, 871.
- fatigue of (SCOTT), A., ii, 240.
- peripheral, action of radium rays on (BECK), A., ii, 40.
- Nervous diseases**, the suprarenal capsules in (MOTT and HALLIBURTON), A., ii, 184.
- Nervous system**, metabolism of the (KOCH), A., ii, 182.
- in frogs, loss of function and recovery of the central (RIES), A., ii, 40.
- Nervous tissues**, influence of normal salts on the staining and fixation of (MAYR), A., ii, 182.
- Neuræmin** (GABLIN & CIE.), A., i, 546.
- Nickel** (COPAUX), A., ii, 91.
- distribution of, in nature (KRAUT), A., ii, 858.
- tervalent (BENEDICT), A., i, 333.
- boiling and distillation of (MOISSAN), A., ii, 232.
- Nickel alloys with antimony** (LOSSEW), A., ii, 361.
- Nickel compounds** with thiocarbamide (ROSENHEIM and MEYER), A., i, 408.
- Nickel salts**, hydrolysis of, in presence of iodides and iodates (MOODY), A., ii, 706.
- compounds of, with ethylenediamine and α - and β -naphthylamines (GROSSMANN and SCHÜCK), A., i, 629, 630.
- Nickel-ammonio-chloride**, preparation of a double salt of (FRASCH), A., ii, 91.
- Nickel chloride**, hydrated, crystalline form and deformation of (MÜGGE), A., ii, 620.
- oxide electrode. See under Electrochemistry.

- Nickel peroxide**, formation of (RIESENFELD), A., ii, 723.
Nickelonicnickelic oxide (BAUBIGNY), A., ii, 91, 170.
Nickelous nickelite (HOFMANN and HIELDMAIER), A., ii, 747.
Nickel silicides (GUERTLER and TAMMANN), A., ii, 362; (VIGOUROUX), A., ii, 451.
Nickel ammonio-cyanide, behaviour of homologous cyclic compounds towards (HOFMANN and ARNOLDI), A., i, 153.
 dicyanodiamidine (GROSSMANN and SCHÜCK), A., ii, 903.
 mercury thiocyanate (ORLOFF), A., i, 406.
Nickel, new test for (REICHARD), A., ii, 495.
 delicate test for (GROSSMANN and SCHÜCK), A., ii, 903.
 estimation of (CORMIMBOEUF), A., ii, 198.
 estimation of small quantities of, in organic substances (ARMIT and HARDEN), A., ii, 397.
 and cobalt, separation of, from iron and manganese (FUNK), A., ii, 806.
Nicotine and its specific rotation and zinochloride (RATZ), A., i, 103.
 See also Metanicotine.
Nicotinic acid, 2-hydroxy-, methyl ester and chloride (KIRPAL), A., i, 694.
Niobium. See Columbium.
Nitrates. See under Nitrogen.
Nitration in the presence of phosphoric oxide (BEHREND and OSTEN), A., i, 229.
Nitric acid and oxide. See under Nitrogen.
Nitrification, study of the process of, with reference to the purification of sewage (CHICK), A., ii, 245.
 action of charlock on (GUTZEIT), A., ii, 476.
 rôle of organic matter in (MÜNTZ and LAINÉ), A., ii, 298.
 intensive (MÜNTZ and LAINÉ), A., ii, 114.
 See also Bacteria, nitrifying, and Bacteria, soil.
Nitriles, formation of, from aldoximes (BORSCHE), A., i, 664.
 of arylglycines (BUCHERER and GROLÉE), A., i, 349.
 acetylenic, formation of (MOUREU and LAZENNÉC), A., i, 148.
 condensation of, with alcohols (MOUREU and LAZENNÉC), A., i, 240.
 condensation of, with amines (MOUREU and LAZENNÉC), A., i, 956.
Nitriles, acetylenic, condensation of, with phenols (MOUREU and LAZENNÉC), A., i, 276.
 termolecular. See Cyanalkines.
Nitriolbromo-osmonates (WERNER and DINKLAGE), A., ii, 176.
Nitrites. See under Nitrogen.
Nitroamines, aromatic, transformation of (BRITISH ASSOCIATION REPORT), A., i, 943.
Nitro-compounds, molecular compounds of, with amines (NOELTING and SOMMERHOFF), A., i, 157; (KREMANN), A., i, 347; (SOMMERHOFF), A., i, 658.
 reduction of, by alkaline solutions of stannous oxide (GOLDSCHMIDT and ECKARDT), A., i, 825.
 reduction of, by tin haloids (GOLDSCHMIDT and SUNDE), A., i, 734.
 condensation of, with amines in presence of sodium (ANGELI and MARCHETTI), A., i, 716.
 aromatic, partial reduction of, by electrolytic methods (BRAND), A., i, 80.
 direct introduction of amino-groups into the nucleus of (MEISENHEIMER and PATZIG), A., i, 652.
 introduction of halogen atoms into the benzene nucleus during the reduction of (BLANKSMA), A., i, 345.
 compounds of, with arylamines (JACKSON and CLARKE), P., 88.
 behaviour of, in the organism (MEYER), A., ii, 244.
 See also Dinitro- and Polynitro-compounds.
Nitroform, *ac*i*-esters* of (HANTZSCH and CALDWELL), A., i, 617.
 salts (HANTZSCH and CALDWELL), A., i, 617.
Nitrogen, atomic weight of (GUYE), A., ii, 19, 349; (GUYE and DAVILA), A., ii, 20.
 possible source of error in Stas' determination of (GRAY), T., 1173; P., 197.
 preparation of, from the atmosphere (HULETT), A., ii, 18.
 separation of pure, from air (CLAUDE), A., ii, 16.
 glow, spectrum of the, produced by the rays of radiotellurium (WALTER), A., ii, 516.
 phosphorescence of (v. MOSENGEIL), A., ii, 714.
 isothermal distillation of oxygen and (INGLIS), A., ii, 332.
 oxidation of (SMITH), T., 475; P., 40; (FISCHER and BRAEHMAR), A., ii, 224.

Nitrogen, oxidation of, by the action of the silent discharge in atmospheric air (WARBURG and LEITHÄUSER), A., ii, 743.
 oxidation of, in the high tension flame (BRODE), A., ii, 6.
 absorption of, by organic substances under the influence of radioactive matter (BERTHELOT), A., ii, 645.
 asymmetric (WEDEKIND and FRÖHLICH), A., i, 14, 162; (WEDEKIND), A., i, 161.
 liquid, some properties of (ERDMANN), A., ii, 349.
 latent heat of vaporisation of, and its variation with temperature (ALT), A., ii, 269.
 experimental determination of the surface tension of (GRUNMACH), A., ii, 655.
 density of, and of its mixture with liquid oxygen (INGLIS and COATES), T., 886; P., 146.
 mixtures of, with liquid oxygen (STOCK and NIELSEN), A., ii, 844.
 unsaturated, reactivity of (VORLÄNDER), A., i, 729.
 influence of the intake of water on the excretion of (HEILNER), A., ii, 295.
 amount of combined, in dew and rain in Dehra Dun and Cawnpore (LEATHER), A., ii, 302.
 amount of, as ammonia and as nitrates and nitrites in Indian rain and dew (LEATHER), A., ii, 487.
 amount of combined, in rain in Pretoria (INGLE), A., ii, 302.
 as ammonia and as nitric acid, amount of, in the rain-water collected at Rothamsted (MILLER), A., ii, 486.
 electrochemical problem of the fixation of (GUYE), A., ii, 533.
 chemical processes in the assimilation of elementary, by Azotobacter and Radiobacter (STOKIASA, TRNKA, and VÍTEK), A., ii, 382.
 apparatus for the absorption of, by means of magnesium and lime (ANDERLINI), A., ii, 605.
 fixation in litter (HORNBERGER), A., ii, 47.
 utilisation of atmospheric, by micro-organisms (THIELE), A., ii, 114.
Nitrogen iodide, action of methyl and benzyl iodides on (SILBERRAD and SMART), T., 172; P., 15.
 oxides, formation of (WARBURG and LEITHÄUSER), A., ii, 743.
 and the lead chamber process (LUNGE and BERL), A., ii, 438.

Nitrogen dioxide (nitric oxide), hydrogen peroxide, and ozone, preparation of (FISCHER and MARX), A., ii, 845.
 formation of, at high temperatures (NERNST), A., ii, 437.
 thermal production of, in moving gases (FISCHER and MARX), A., ii, 606.
 density of (GUYE and DAVILA), A., ii, 20.
 velocity of decomposition of, and its dependence on the temperature (JELLINEK), A., ii, 437.
 oxidation and autoxidation with (MANCHOT), A., ii, 842.
 solubility of, in sulphuric acid (TOWER), A., ii, 743.
 action of, on metallic nitroso-compounds (ZIMMERMANN), A., ii, 82.
 trioxide (*nitrogen sesquioxide, nitrous anhydride*), formation of (KÓSSA), A., ii, 497.
 peroxide or tetroxide, action of, on ammonia and ammonium salts (BESSON and ROSSET), A., ii, 280.
Nitric acid, direct synthesis of, from its elements at the ordinary temperature (BERTHELOT), A., ii, 533.
 formation of, by means of the Tesla discharge (FINDLAY), A., ii, 261.
 formation of, from ammonium persulphate (KEMPF), A., ii, 25.
 dissociation of (BOGDAN), A., ii, 83.
 dissociation of, in mixtures of ether and water (BOGDAN), A., ii, 649.
 and sulphuric acid, removal of nitrous acid from concentrated (SILBERRAD and SMART), A., ii, 226.
 detection of (SOLTSIEN), A., ii, 898.
 two new colour reactions for (REICHARD), A., ii, 704.
 nitron as test for (BUSCH and MEHRTENS), A., i, 118.
 detection of, in alkali iodides (BARONI), A., ii, 578.
 estimation of (SINNATT), P., 255.
 and nitrous acid, estimation of (MEISENHEIMER and HEIM), A., ii, 49, 125.
 and sulphuric acid, estimation of mixtures of (LUNGE and BERL), A., ii, 49.
 estimation of, in nitrates (BORNWATER), A., ii, 578.
 estimation of, in presence of nitrates (BUSCH), A., ii, 392.
 estimation of, in soils (BUHLERT and FICKENDEY), A., ii, 125.

Nitrogen :—

- Nitric acid**, estimation of combined, in waters (DRAWE), A., ii, 490.
- Nitrates**, direct synthesis of, from their elements at the ordinary temperature (BERTHELOT), A., ii, 533.
- formation of, by the electrolytic oxidation of ammonia (MÜLLER and SPITZER), A., ii, 158 ; (TRAUBE and BILTZ), A., ii, 159. as manure. See under Manure.
- Nitrous acid**, oxidation of, by hydrogen peroxide (BUSCH), A., ii, 392. action of, on hydrazine (FRANCKE), A., ii, 82.
- removal of, from concentrated nitric and sulphuric acids (SILBERRAD and SMART), A., ii, 226.
- estimation of (RASCHIG), A., ii, 50 ; (RUPP), A., ii, 907. and nitric acid, estimation of (MEISENHEIMER and HEIM), A., ii, 49.
- Nitrite ion** and its equilibrium with nitrate and nitric oxide (ABEGG and PICK), A., ii, 833.
- Nitrates**, formation of, by the electrolytic oxidation of ammonia (MÜLLER and SPITZER), A., ii, 158 ; (TRAUBE and BILTZ), A., ii, 159. as manure. See under Manure.
- Nitrogen sulphide**, N_2S_4 , crystalline form of (ARTINI), A., ii, 533. action of, on certain metallic chlorides (DAVIS), T., 1575 ; P., 261.
- Nitrogen estimations**, determination of the strength of the solutions used in (MACH), A., ii, 49.
- estimation of, by the absolute method, occurrence of methane among the decomposition products of certain nitrogenous substances as a source of error in (HAAS), T., 570 ; P., 81.
- estimation of pepsin-soluble, in foods (STUTZER, WANGNICK, and ROTHE), A., ii, 820.
- estimation of proteid, in beet molasses (STUTZER and V. WOLOSEWICZ), A., ii, 912.
- estimation of, in nitrocellulose (BUSCH), A., ii, 708.
- estimation of, in saltpetre (VAN DAM), A., ii, 898.
- Nitrogen compounds**, certain, structure of (ANGELI and CASTELLANA), A., i, 162.
- optically active, effect of constitution on the rotatory power of (THOMAS and JONES), T., 280 ; P., 10.
- Nitrogen compounds**, oxygenated, sensitive colour reaction for (VOISENET), A., ii, 59.
- with phosphorus, volatility in (HENRY), A., i, 549.
- Nitrogenous** equilibrium, can, in the animal organism be attained by heteroalbumoses ? (HENRIQUES and HANSEN), A., ii, 779.
- metabolism. See under Metabolism. substances, cutaneous excretion of (BENEDICT), A., ii, 107.
- Nitro-group**, new step in the reduction of (HELLER), A., i, 585.
- Nitroimines**, constitution of (SCHOLL and HOLDERMANN), A., i, 767 ; (ANGELUCCI), A., i, 768.
- Nitrometer** (NEWFIELD and MARX), A., ii, 628.
- Nitron**. See 1:4-Diphenyl-3:5-*endo*-amino-4:5-dihydro-1:2:4-triazole.
- Nitroprusside**, formation of (HOFMANN and ARNOLDI), A., i, 562.
- Nitroprussides**, action of sulphides on (VIRGILI), A., i, 637.
- iso***Nitroso-compounds**, relation between the absorption spectra and chemical constitution of (BALY, MARSDEN, and STEWART), T., 966 ; P., 126.
- Nitrosyl fluoride** (RUFF and STÄUBER), A., ii, 20.
- Nitrosylselenic acid** (LENHER and MATHEWS), A., ii, 349.
- Nitros acid and anhydride**. See under Nitrogen.
- Nodules**, leguminous, influence of nutrients on the development of (FLAMAND), A., ii, 44.
- Non-electrolytes**, osmotic pressure of solutions of, in connection with the deviations from the laws of ideal gases (VAN LAAR), A., ii, 526.
- Nonenyl alcohol**. See *tert*.-Dimethylheptenol.
- Noninene**. See $\beta\zeta$ -Dimethyl- $\Delta\beta\zeta$ -heptadiene.
- Noninoic acid**. See Hexylpropionic acid.
- n-Noic acid** (*pelargonic acid*), salts (HARRIES and THIEME), A., i, 227.
- Nonyl aldehyde**, semicarbazone of (HARRIES and THIEME), A., i, 227.
- Nonyl bromide** (MABERY and QUAYLE), A., i, 395.
- Nonylthiophan** and its sulphone (MABERY and QUAYLE), A., i, 395.
- Nopinene** and **Nopinic acid** from French and American turpentine oils (AHLSTRÖM and ASCHAN), A., i, 442.
- Nordenskiöldite**, reproduction of (OUVRARD), A., ii, 669.
- Norhirtaic acid** (HESSE), A., i, 280.

- Northupite and tychite**, isomorphism of (DE SCHULTE), A., ii, 769.
- Nuclease** (SACHS), A., i, 126.
- Nucleic acid**, oxidation of (KUTSCHER), A., i, 55.
from fishes' eggs, pyrimidine bases of (MANDEL and LEVENE), A., ii, 375.
of the intestine (INOUE and KOTAKE), A., i, 55.
of the kidney (MANDEL and LEVENE), A., i, 468.
from the mammary gland, compounds of, with proteids, in relation to caseinogen formation (LÖBISCH), A., i, 719.
from the mammary glands of the cow (MANDEL and LEVENE), A., i, 125.
from the spermatozoa of *Muraenesox cinereus* (INOUE), A., i, 775.
- Nucleic acids**, preparation and analysis of (MANDEL and LEVENE), A., i, 125.
oxidation of (STEUDEL), A., i, 915.
metabolism of, in the organism (ABDERHALDEN and SCHITTENHELM), A., ii, 465.
of the thymus (STEUDEL), A., i, 125.
from yeast, preparation and composition of (Boos), A., i, 775.
- Nuclein metabolism**. See Metabolism.
- Nucleo-proteid** of blood-serum (LIEBERMEISTER), A., ii, 776.
- of the spleen, the carbohydrate group of the (LEVENE and MANDEL), A., i, 468.
- Nut oil**, detection of foreign oils in (BALAVOINE), A., ii, 589.
- Nutrition**, chemical dynamics of animal (SCHRÖYVER), A., ii, 292.
influence of high altitudes on general (GUILLEMARD and MOOG), A., ii, 101.
influence of diet on (WATSON and HUNTER), A., ii, 101, 239.
with proteid and glycogen analysis (PFLÜGER), A., ii, 240.
- Nutritive requirements** of the body (BENEDICT), A., ii, 689.
- O.**
- Oak leaves**, insoluble alkali compounds in (BERTHELOT), A., ii, 246.
- Oaks**, insoluble potassium compounds in the trunk and bark of (BERTHELOT), A., ii, 246.
- Oat husks**, food value and digestibility of (HONCAMP), A., ii, 701.
- Obesity**, blood-glands as pathogenic factors in the production of (LORAND), A., ii, 296.
- Oblitine**, decomposition of, by means of bacteria (KUTSCHER), A., ii, 697.
- Oceanic salt deposits**, formation of (VAN'T HOFF), A., ii, 36, 619, 863; (VAN'T HOFF and D'ANS), A., ii, 36, 456; (VAN'T HOFF and BLASDALE), A., ii, 177; (VAN'T HOFF, FARUP, and D'ANS), A., ii, 236.
- von't Hoff's, new method of representing graphically (JÄNECKE), A., ii, 833.
- Ochric acid** (HESSE), A., i, 281.
- Ochrolechiasic acid** and its salts (HESSE), A., i, 281.
- Ocimene** and *allo*Ocimene, formula of (ENKLAAR), A., i, 377.
- Ocimenol** and its phenylurethane (ENKLAAR), A., i, 377.
- Ocoite usambarensis**, oil of (SCHMIDT and WEILINGER), A., i, 299.
- Octadecylthiophan** (MABERY and QUAYLE), A., i, 395.
- Octadienes**. See $\beta\epsilon$ -Dimethylhexadienes.
- Octahydroanthramine** and its additive salts and acetyl derivative (GODCHOT), A., i, 76.
- Octahydroanthranol** (GODCHOT), A., i, 494.
- Octahydrometanicotine** and its additive salts (MAAS and HILDEBRANDT), A., i, 980.
- 4-Octahydronaphthalene** and dibromo-(LEROUX), A., i, 16.
- Octamethyleneimine**, attempted synthesis of (BLAISE and HOUILLON), A., i, 693.
- Octane**. See Dimethylhexanes, Hexamethylethane, and β -Methylheptane.
- Octane, dihydroxy-**. See $\beta\epsilon$ -Dimethylhexane- $\beta\epsilon$ -diol.
- Octanedicarboxylic acids**. See Dihydrocanphoric acid, Hexylsuccinic acid, Sebacic acid, and $\beta\beta\epsilon$ -Trimethylpimelic acid.
- Octanetricarboxylic acid** (BLANC), A., i, 399.
- iso***Octenolactone**, constitution of (THIELE and WEDEMANN), A., i, 725.
- Octenyl alcohols**. See Diethylisopropenylcarbinol, $\beta\epsilon$ -Dimethyl- $\Delta\epsilon$ -hexylene- β -ol, and sec.-Methylheptenol.
- Octinoic acid**. See Amylpropionic acid.
- Octyl bromide** (MABERY and QUAYLE), A., i, 395.
- α **-Octyldecoic acid**, α -hydroxy- (MOLINARI and SONCINI), A., i, 792.
- Otylenediamine**. See $\gamma\delta$ -Dimethylhexane, $\gamma\delta$ -diamino-.
- Octylthiophan** and its sulphone and *iso*-**Octylthiophan** (MABERY and QUAYLE), A., i, 395.

- Odour**, relation between chemical structure and, in organic compounds (WOKER), A., ii, 739.
- Enanthyl**. See Heptyl.
- Oils** used for gas-making purposes, composition and valuation of (ROSS and LEATHER), A., ii, 815.
- oxidation of (PROCTER and HOLMES), A., i, 136.
- etherial (SCHMIDT and WEILINGER), A., i, 299; (HAENSEL; SCHIMMEL & Co.), A., i, 524.
- from Conifers (HANSON and BABCOCK), A., i, 869.
- fatty, from the seeds of the berries of *Rhamnus cathartica* (KRASOWSKI), A., ii, 883.
- mineral. See Mineral oil.
- stale, Kreis' reactions for the detection of (KREIS), A., ii, 403.
- analysis of, preparation of aldehyde-free alcohol for (DUNLAP), A., i, 893.
- ozone numbers of (FENAROLI), A., ii, 896.
- determination of the saponification number in (DAVIDSOHN and WEBER), A., ii, 908.
- See also Tar oils.
- Olefines**, preparation of (MAILHE), A., i, 129; (CHABLAY), A., i, 130.
- See also Hydrocarbons.
- Olefinic compounds**, action of aqueous solutions of mercuric acetate on (BALBIANO, PAOLINI, NARDACCI, TONAZZI, LUZZI, BERNARDINI, CIRELLI, MAMMOLA, and VESPIGNANI), A., i, 186.
- Oleic acid**, constitution of (MOLINARI and SONCINI), A., i, 792.
- ozonide and its peroxide (HARRIES and THIEME), A., i, 227, 793; (MOLINARI and SONCINI), A., i, 792; (WEYL), A., i, 925.
- metallic salts, dielectric constant of solutions of (KAHLENBERG and ANTHONY), A., ii, 825.
- ammonium salt, liquid crystals of (LEHMANN), A., ii, 837; (WALLERANT), A., ii, 838.
- Oleo-resins** from the Norway pine and Douglas fir (FRANKFORTER), A., i, 971.
- Olcum cadi*. See Juniper, empyreumatic oil of.
- Olive leaves** (CANZONERI), A., ii, 886.
- Olive oil**, Java (WEDEMEYER), A., ii, 814.
- Olivine**, ratio of iron and magnesium in (SCHILLER), A., ii, 770.
- Onoceric acid** and its salts and nitro-derivatives and ψ -Onoceric acid (v. HEMMELMAYR), A., i, 356.
- Onocerin (onocol)**, reactions of (v. HEMMELMAYR), A., i, 356.
- Opium** and its preparations, assay of (ASHER), A., ii, 638.
- Opium alkaloids** (FALTIS), A., i, 979.
- Optical activity** and **Optically active substances**. See under Photochemistry.
- Orange**, Japanese, composition of the fibrous part of the (BAHADUR), A., ii, 886.
- Orchids**, occurrence of emulsin and hydrogen cyanide in (GUIGNARD), A., ii, 119.
- Orcinol**, isomeric nitroso-derivatives (HANTZSCH and SLUITER), A., i, 173.
- Ores**, estimation of antimony, arsenic, and sulphur in (SCHÄFER), A., ii, 394.
- estimation of sulphur in (LUNGE and STIERLIN), A., ii, 195.
- Organic compounds**, luminescence of certain, between $+100^\circ$ and -190° (BORISSOFF), A., ii, 317.
- critical temperature and value of $\frac{ML}{\Theta}$ of (BROWN), T., 311; P., 39.
- use of vanadium salts in the electrolytic oxidation and reduction of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 862.
- magnitude of the liquid molecules of certain (CARRARA and FERRARI), A., ii, 599.
- reactions involving the addition of hydrogen cyanide to (LAPWORTH), T., 945, 1869; P., 164, 285.
- liberation of carbon monoxide from (BISTRZYCKI and v. SIEMIRADZKI), A., i, 135.
- toxicity of, estimated by their haemolytic effects (VANDEVELDE), A., ii, 379.
- new method for the elementary analysis of (CARRASCO), A., ii, 200; (CARRASCO and PLANCHER), A., ii, 201; (MORSE and GRAY), A., ii, 399.
- estimation of halogens in (VAUBEL and SCHEUER), A., ii, 250.
- Organic matter**, estimation of, in water. See under Water.
- Organic substances**, oxidation of, by ferrous sulphate in presence of animal extracts, and the moderating action of catalase on (BATTELLI and STERN), A., ii, 107.
- estimation of arsenic in (TARUGI and BIGAZZI), A., ii, 629.
- estimation of halogens in (SCHIFF; BERRY), A., ii, 797.

- Organic substances**, estimation of nickel in (ARMIT and HARDEN), A., ii, 397.
Organism, the living, as a chemical agency (MELDOLA), T., 749.
 can nitrogenous equilibrium in the, be attained by heteroalbumoses? (HENRIQUES and HANSEN), A., ii, 779.
 behaviour of toluidines in the (HILDEBRANDT), A., ii, 110.
 filtration in the living (HILL), A., ii, 242.
 formation of acetone in the (SATTA), A., ii, 105.
 formation of creatinine in the (JAFFÉ), A., ii, 783.
 source of thiocyanate in the (WIL-LANEN), A., ii, 784.
Organs, formation of *d*-lactic acid by the autolysis of (MOCHIZUKI and ARIMA), A., ii, 873.
Ornithogalum arabicum, the ovary of, devoid of assimilatory power (FRIEDEL), A., ii, 481.
Orsat apparatus, modification of the (DE SAINT MARTIN), A., ii, 304.
Orthoclase after laumontite from Ottawa Co., Quebec (GRAHAM), A., ii, 682.
Osannite from Cevadas, Portugal (HLAWATSCHE), A., ii, 775.
Osmium, boiling of (MOISSAN), A., ii, 175.
Nitrilobromo-osmonates (WERNER and DINKLAGE), A., ii, 176.
Osmosis and Osmotic pressure. See under Diffusion.
Osteolite, pseudomorphs of, after calcite (SCHWANTKE), A., ii, 35.
Osteomalacia, effect of castration on metabolism in (McCRUDDEN), A., ii, 876.
 composition of bone in (McCRUDDEN), A., ii, 783.
Otavite, a new cadmium mineral (SCHNEIDER), A., ii, 620.
Ovo-vitellin (HUGOUNENQ), A., i, 324.
Owala oil (WEDEMAYER), A., ii, 815.
Ox liver. See under Liver.
 muscle. See under Muscle.
 urine. See under Urine.
Oxalacetic acid and its esters, constitution of (MICHAEL and MURPHY), A., i, 179.
Oxalic acid, formation of, by *Aspergillus niger* (WEHMER), A., ii, 191.
 decomposition of (BREDIG and LICHTY), A., ii, 602.
 oxidation of (KEMPF), A., ii, 24.
Oxalic acid, salts, preparation of, from formates (KOEPP & Co.), A., i, 4.
 alkaline-earth salts, decomposition of, by aqueous solutions of alkali sulphates (CANTONI), A., i, 557.
Oxalic acid, ferrous salt, molecular condition of, in solution (SHEPPARD and MEES), P., 105.
 glucinium salt, hydrates of (PARSONS and ROBINSON), A., i, 479.
Oxalic acid, ethyl ester, action of, on acetanilide and its homologues (RUHE-MANN), T., 1236 ; P., 197.
Oxalic acid, *d*-amino-, methyl ester (BIDDLE), A., i, 340.
1-Oxaloindene-3-acetic acid and its esters (THIELE and RÜDIGER), A., i, 587.
Oxalyldihydrazide, condensation products of (BÜLOW), A., i, 46.
Oxamides, halogen derivatives of substituted (CHATTAWAY and LEWIS), T., 155 ; P., 18.
1-Oxamidobis-2:5-dimethylpyrrole and its 3:4-dicarboxylic acid, ethyl ester (BÜLOW), A., i, 46.
Oxanilamide (*phenyloxamide*), *p*-mono- and 2:4-di-chloro- (CHATTAWAY and LEWIS), T., 158 ; P., 18.
p-nitro- (SCHULTZ, ROHDE, and HERZOG), A., i, 890.
Oxanilic acid (*phenyloxamic acid*), *p*-mono- and 2:4-di-chloro-, ethyl esters (CHATTAWAY and LEWIS), T., 158 ; P., 18.
 σ -, *m*-, and *p*-chloro-, and their salts (PICCININI and DELPIANO), A., i, 944.
p-nitro-, ethyl ester (SCHULTZ, ROHDE, and HERZOG), A., i, 891.
Oxazine and thiazine dyes, constitution of (HANTZSCH), A., i, 206, 453 ; (KEHRMANN, MODEBADZÉ, and VESELY), A., i, 306.
Oxazole rings, resolution of (FISCHER and RÖMER), A., i, 539.
isoOxazolone-3-carboxylic acid, 4-*iso*-nitroso-, ethyl ester (WAHL), A., i, 624.
Oxidation reactions, acceleration of certain, by hydrogen cyanide (LOEVENHART), A., ii, 153 ; (BREDIG, FRAENKEL, and LICHTY), A., ii, 426.
Oxidations, slow, in presence of moisture (SMITH), T., 478 ; P., 39.
 spontaneous, in presence of benzaldehyde (BETTI), A., i, 985.
 by air (FOUARD), A., i, 421 ; (JOB), A., ii, 531.
 by fusion (GRAEBE and KRAFT), A., i, 255.
 by metallic oxides as catalytic agents (SABATIER and MAILHE), A., i, 549 ; (MATIGNON and TRANNOY), A., ii, 427.
 of *o*-, *m*-, and *p*-compounds, relative rates of (BRADSHAW), A., i, 360.

- Oxide**, $C_{12}H_{24}O$, from the action of dilute sulphuric acid on ethyl propyl ketone (GOLDBERGER and TANDLER), A., i, 58.
- Oxide formation** on the anode and passivity (MÜLLER and SPITZER), A., ii, 158, 724.
- Oxides**, action of hydrogen sulphide on (GAUTIER), A., ii, 548.
See also Metallic oxides.
- Oxidising agent**, magnesium permanganate as an (MICHAEL and GARNER), A., ii, 229.
substances, estimation of, by hydrazine sulphate (MEDRI), A., ii, 628.
- Oximes**, velocity of formation of (PETRENKO-KRITSCHENKO and KANTSCHEFF), A., ii, 341.
mechanism of the isomerisation of (WALLACH), A., i, 522.
action of nitrogen tetroxide on (PONZIO), A., i, 593, 735.
- Oximinoacetic acid**, bromo-, ethyl ester (JOVITSCHITSCH), A., i, 230.
- Oximino-butrylic, -malonic, and -propionic acids**, ethyl esters, electrolysis of the sodium or potassium derivative of (ULPIANI and RODANO), A., i, 144.
- Oximino-compounds**, action of diazo-hydrates on (BRESLER, FRIEDEMANN, and MAI), A., i, 321.
- Oximino-esters**, reduction of (BOUVEAU and LOCQUIN), A., i, 938.
- Oximo-ether group**, electro-synthesis in the (ULPIANI and RODANO), A., i, 144.
- 6-Oxy-2-anilinopyrimidine** (JOHNSON and JOHNS), A., i, 456.
- 6-Oxy-2-benzylideneaminopyrimidine** (JOHNSON and JOHNS), A., i, 114.
- Oxycholestene**, constitution and reactions of (WINDAUS), A., i, 580.
- Oxydases**, stability of, and their behaviour towards various reagents (KASTLE), A., i, 615.
chemical, acting in the presence of hydrogen peroxide (BAUDRAN), A., ii, 18.
extracellular (RACIBORSKI), A., ii, 700.
- Oxydialkylpyrimidine derivatives**, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 704.
- 2-Oxy-5-diethylpyrimidine**, 4:6-dimino- (MERCK), A., i, 537, 715.
- Oxydi-ethyl- and -propyl-pyrimidines**, iminocyanomino- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 538.
- 6-Oxy-5-dimethyl- and -5-diethyl-pyrimidines**, 4-imino-2-thio- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 461.
- Oxydinaphthyldiphenylmethane** (CLOUGH), T., 775; P., 109.
- 6-Oxy-5-ethoxy-2-methyl- and -2-ethyl-thiopyrimidines** (JOHNSON and MC-COLLUM), A., i, 704.
- 6-Oxy-5-ethoxypyrimidine**, 2-amino-
See 5-Ethoxycytosine.
- 6-Oxy-2-ethylthiol-5-ethylpyrimidine** (JOHNSON and MENGE), A., i, 986.
- 6-Oxy-2-ethylthiopyrimidine**, 5-iodo- (JOHNSON and JOHNS), A., i, 455.
- Oxygen**, separation of pure, from air (CLAUDE), A., ii, 16.
abstraction of, from the atmosphere by iron (SMYTH), A., ii, 35.
action of the silent electric discharge on (POHL), A., ii, 437.
coefficient of expansion of (JAQUEROD and PERRON), A., ii, 34.
and hydrogen, relative densities of, lecture experiment (THIELE), A., ii, 661.
rate of action of, on carbon (FARUP), A., ii, 745.
atmospheric, catalytic action of the alkali and alkaline-earth salts in the fixation of, by solutions of the phenols (FOUARD), A., i, 421.
catalytic action of the rare-earth haloids in the fixation of, by solutions of phenols (FOUARD), A., i, 578.
liquid, latent heat of vaporisation of, and its variation with temperature (ALT), A., ii, 269.
experimental determination of the surface tension of (GRUNMACH), A., ii, 655.
density of, and of its mixture with liquid nitrogen (INGLIS and COATES), T., 886; P., 146.
mixtures of, with liquid nitrogen (STOCK and NIELSEN), A., ii, 844.
action of radium rays on mixtures of, with hydrogen (JORISSEN and RINGER), A., ii, 515.
combination of, with hydrogen in contact with hot surfaces (BONE and WHEELER), A., ii, 434.
isothermal distillation of mixtures of nitrogen and, and of argon and (INGLIS), A., ii, 332.
basic properties of (MCINTOSH), A., i, 481.
action of, on rubidium-ammonium (RENGADE), A., ii, 539.
conversion of, into ozone at high temperatures (FISCHER and BRAEMAR), A., ii, 224.
- Oxygen**, test for (CHRISTOMANOS), A., ii, 896.

- Oxygen**, estimation of, in copper (ARCH-BUTT), A., ii, 122.
 estimation of, in salt solution (BART-CROFT and HAMIL), A., ii, 798.
 estimation of dissolved, in sea water (JORISSEN and RINGER), A., ii, 490.
 modification of Winkler's process for the estimation of dissolved, in water (NOLL), A., ii, 48.
- Oxygen compounds**, free energy of, computed from the results of potential measurements (THOMPSON), A., ii, 517.
 addition of halogens and hydrogen perhaloids to (HANTZSCH and DENSTORFF), A., i, 745.
- Oxyhaemoglobin**, physical chemistry of (ABEL and v. FÜRTH), A., i, 546.
 fluorides (VILA and PIETTRE), A., i, 914.
- Oxyhalogen compounds** (BRAY), A., ii, 221, 222, 278.
- Oxyleucotin**. See 3':4'-Methylenedioxy-2:4:6-trimethoxybenzophenone.
- 4-Oxy-7-methylisocarbostyryl** and its 3-carboxylic acid, methyl ester (FINDEKLEE), A., i, 42.
- 6-Oxy-3-methylpyrimidine**, 4-amino-2-thio-, 4:5-diamino-2-thio-, and 4-imino-5-isonitroso-2-thio- (TRAUBE and WINTER), A., i, 390.
- 4-Oxy-7-methylisoquinoline** and 1-chloro- (FINDEKLEE), A., i, 43.
- 4-Oxy-2-methylthiopyrimidine**, 5:6-di-amino- and 6-amino-5-nitroso- (JOHNSON, JOHNS, and HEYL), A., i, 771.
- 2-Oxy-5-propylpyrimidine**, 4:6-diamino- (MERCK), A., i, 537.
- Oxyproteic acids** in normal human urine (BONDZYŃSKI, DOMBROWSKI, and PANEK), A., i, 122.
- 2-Oxypyrimidine**, 6-amino-derivatives and their hydrochlorides (JOHNSON, JOHNS, and HEYL), A., i, 771.
 4-amino-. See Cytosine.
 5:6-diamino-, and its additive salts, and 5-nitro-6-phenylcarbamido- (JOHNSON, JOHNS, and HEYL), A., i, 771.
- 6-Oxypyrimidine**, 2:5-diamino-, and its additive salts and benzoyl derivative, and 5-nitro-2-amino- (JOHNSON and JOHNS), A., i, 113.
- 2-Oxy-1:6:6-trimethyl-Δ³-tetrahydro-pyridine-4-carboxylic acid** and its salts and dibromo-derivatives (PICCININI), A., i, 983.
- Oxuracil**, acidic constants of (WOOD), T., 1834.
- Oxyurushin** (TSCHIRCH and STEVENS), A., i, 31.
- Ozone** (LUTHER), A., ii, 80; (JAHN), A., ii, 225.
 amount of, in the air at various points on Mt. Blanc (LESPIEAU), A., ii, 741.
 preparation of (HARRIES), A., ii, 844.
 nitric oxide, and hydrogen peroxide, preparation of (FISCHER and MARX), A., ii, 845.
 formation of, from oxygen at high temperatures (FISCHER and BRAEHMAR), A., ii, 224.
- influence of moisture and temperature on the formation of, from oxygen and atmospheric air (WARBURG and LEITHÄUSER), A., ii, 741.
- preparation of, from oxygen and atmospheric air by the silent discharge from metallic electrodes (WARBURG and LEITHÄUSER), A., ii, 740.
- equilibrium point in the formation and decomposition of, by the action of the electric discharge from points in oxygen (CERMÁK), A., ii, 740.
- influence of the material of the vessel and of light on the formation of, by the silent discharge (RUSS), A., ii, 606.
- influence of pressure and of the form of the discharge on the production of (CHASSY), A., ii, 663.
- production of, by the electrolysis of alkali fluorides (PRIDEAUX), A., ii, 741.
- thermal production of, in moving gases (FISCHER and MARX), A., ii, 606.
- absorption spectrum of (LADENBURG and LEHMANN), A., ii, 509.
- oxidising action of (HARRIES, LANGHELD, THIEME, TÜRK, and WEISS), A., i, 225; (HARRIES and THIEME), A., i, 793; (HARRIES and NERESHEIMER), A., i, 833.
- action of, on fats (MOLINARI and SONCINI), A., i, 792; (HARRIES and THIEME), A., i, 793.
- action of, on germination (MICHEELS and DE HEEN), A., ii, 791.
- use of, in quantitative analysis, and generator for (JANNASCH and GOTTSCHALK), A., ii, 577.
- reagents for (ARNOLD), A., ii, 390; (FISCHER and MARX), A., ii, 627.
- detection of, by means of silver (THIELE), A., ii, 250.
- estimation of (TREADWELL and ANNELER), A., ii, 123.
- estimation of, gravimetrically (FENAROLI), A., ii, 896.
- estimation of, in liquid air (FISCHER and BRAEHMAR), A., ii, 225.

Ozonides, preparation of (HARRIES, LANGHELD, THIEME, TÜRK, and WEISS), A., i, 225; (MOLINARI and SONCINI), A., i, 792; (HARRIES and THIEME), A., i, 793; (HARRIES and NERESHEIMER), A., i, 833.

Ozotoluene (HARRIES and WEISS), A., i, 228.

P.

Palladic chloride. See Palladium *tetrachloride*.

Palladium, occurrence of (HEADDEN), A., ii, 38.

boiling of (MOISSAN), A., ii, 175.

change of resistance of, caused by occluded hydrogen (FISCHER), A., ii, 516.

oxidation of (WÖHLER), A., ii, 94.

solution, black, obtained by means of carbon monoxide, colloidal nature of the (DONAU), A., ii, 289.

Palladium dibromide and dichloride (*palladous bromide* and *chloride*), compounds of, with bases (GUTBIER and KRELL), A., i, 12, 244.

tetrachloride (*palladic chloride*), compounds of, with tertiary cyclic bases (MÖHLAU), A., i, 304.

haloids, compounds of, with aliphatic amines (GUTBIER and KRELL), A., i, 402; (GUTBIER and WOERNLE), A., i, 805.

dioxide, hydrated (BELLUCCI), A., ii, 35; (WÖHLER and KÖNIG), A., ii, 176.

Palladosamine, derivatives of (GUTBIER and KRELL), A., i, 12, 244.

Palladium, estimation of (DONAU), A., ii, 309.

Palladous bromide and chloride. See Palladium *dibromide and dichloride*.

Palm kernel oil, estimation of the total fatty acids in (FAHRION), A., ii, 402.

Palmerite, a new hydrated aluminium potassium phosphate (CASORIA), A., ii, 554.

Palmitic acid, sodium salt, hydrolysis of (COHN), A., ii, 58.

dihydroxy-, and its acetyl derivative, from cod liver oil (BÜLL), A., i, 925.

Paltreubin and α - and β -Paltreubyl alcohols and their acetates from the gutta from *Palaeonium Treubi* (JUNG-FLEISCH and LEROUX), A., i, 525.

Pancreas, adaptation of the, to lactose (PLIMMER), A., ii, 239.

rôle of the, in the digestion and absorption of carbohydrates (LOMBROSO), A., ii, 292.

Pancreas, influence of autolysis on the pentose of the (MITCHELL), A., ii, 559.

Pancreas diabetes. See under Diabetes. juices, behaviour of different polypeptides towards (FISCHER and ABDERHALDEN), A., ii, 99.

steapsin. See Steapsin.

Pancreatic juice, activation of, by calcium salts (DELEZENNE), A., ii, 99, 100.

amylase and maltase of (BIERRY and GIAJA), A., ii, 780.

Pandermite, artificial production of (VAN'T HOFF), A., ii, 619.

Papain, action of (DELEZENNE, MOUTON, and POGERSKI), A., i, 328.

digestion by (KUTSCHER and LOHMAN), A., i, 127.

Papaver, comparative studies on three species of (PAVESI), A., ii, 483.

Paper, estimation of arsenic, electrolytically, in (THORPE), T., 408; P., 73.

Parabanic acid, acidic constants of (WOOD), T., 1834.

Paracasein and casein, comparison of the properties of (LAQUEUR), A., i, 56.

action of lactic acid on (LAXA), A., i, 123.

Paraffin, fungus which decomposes (RAHN), A., ii, 479.

carbon tetrachloride as a solvent for, in analysis (GRAEFFE), A., ii, 201.

Paraffins, preparation of (CHABLAY), A., i, 130.

α -dinitro-, symmetrical tertiary (BEWAD and PIRINSKY), A., i, 393.

See also Hydrocarbons.

Paraffin oils. See Petroleum.

Paramocium, validity of Pflüger's law for (BANCROFT), A., ii, 104.

relative concentration of the calcium ions in reference to the reversal of the polar effects of the galvanic current in (BANCROFT), A., ii, 869. action of alkaloids on (BROWN), A., ii, 188.

Paratacamite, constitution of (SMITH and PRIOR), A., ii, 455.

Paravivianite from Russia (POPOFF), A., ii, 236.

Paraxanthine, formation of, from caffeine (FISCHER and ACH), A., i, 219. affinity constants of (WOOD), T., 1842; P., 271.

Paric and Parinic acids (HESSE), A., i, 282.

Paris green and its homologues, constitution of (AVERY), A., i, 788.

Parotid gland. See under Gland.

Parthenogenesis, artificial, rôle of oxygen in (LOEB), A., ii, 371.

- Partition.** See under Affinity, chemical.
- Partition,** principle of ("Verteilungs-princip") (MICHAEL), A., i, 550. application of (MICHAEL and TURNER), A., i, 550; (MICHAEL and LEIGHTON), A., i, 551, 781; (MICHAEL and HARTMAN), A., i, 551; (MICHAEL), A., i, 559, 781.
- Passivity** of metals, theory of the (MÜLLER; FREDENHAGEN), A., ii, 76.
- Pastry,** process of decomposition of (LEPÈRE), A., ii, 640. estimation of organic phosphorus compounds in (ARRAGON), A., ii, 592.
- Patchouli oil** from Perak, Federated Malay States, A., i, 442.
- Paving material,** estimation of total soluble bitumen in (AVERY and CORR), A., ii, 584.
- Pea husks,** food value and digestibility of (HONCAMP), A., ii, 701.
- Peat,** determination of the calorific value of, with the Lewis-Thomson calorimeter (SALVADORI), A., ii, 900. as a medium for the production of nitrates (MÜNTZ and LAINÉ), A., ii, 476.
- Pechmann's dye** from benzoylelarylic acid (KÓZNIEWSKI and MARCHLEWSKI), A., i, 759.
- Pectins,** Mangin's ruthenium-red as a reagent for (TOBLER), A., ii, 906.
- Palgonic acid.** See *n*-Nonoic acid.
- Penicillium crustaceum,** action of copper salts on the germination of (LE RENARD), A., ii, 880.
- Penicillium glaucum,** formation of acid and alkali in artificial culture media of (KOHN and CZAPEK), A., ii, 790.
- Pentadecanetetracarboxylic acid.** See $\beta\mu$ -Dimethyltridecane- $\alpha\omega$ -tetracarboxylic acid.
- cyclo***Pentadiene** nitroso-bromide and -chloride (RULE), T., 1340; P., 285. additive products of, with quinones and (ALBRECHT), A., i, 674. condensation products of (THIELE, BALHORN, and ALBRECHT), A., i, 639.
- cyclo***Pentadieneazobenzene** perbromide (EIBNER and LAUE), A., i, 614.
- cyclo***Pentadiene-benzoquinone**, -dihydrobenzoquinol, -dihydrobenzoquinone, -chloroanil, and - α -naphthaquinone, and their derivatives (ALBRECHT), A., i, 675.
- Pentaglycylglycine** and its methyl ester (FISCHER), A., i, 146.
- 2:2':4:4':6'-Pentaketo-3:3:3':3':5:5':5'-octamethyltetrahydrophenylphenylidenemethane,** 6-hydroxy-, and its methyl ether (HERZIG, WENZEL, and REISMANN), A., i, 94.
- 1:2:3:3':4'-Pentamethoxybenzophenone** and hydroxy- and its benzyl derivative, synthesis of (PERKIN and ROBINSON), P., 305.
- 2:4:6:3':4'-Pentamethoxybenzophenone** (*pentamethylmaclurin*) and bromo-, synthesis of (PERKIN and ROBINSON), P., 305.
- 3:4:3':4':5'-Pentamethoxybenzophenone** and its oxime (PERKIN, WEIZMANN, and NAYLOR), T., 1664.
- 2-hydroxy-, and its oxime (PERKIN, WEIZMANN, and HARDING), T., 1665.
- Pentamethylenediaminium cyanide** (PETERS), A., i, 817.
- Pentamethyleneethane,** bromo- (HENRY and DE WAEL), A., i, 782.
- Pentamethylmethanol** and its hydrate (HENRY), A., i, 618. synthesis of (HENRY), A., i, 477; (HENRY and DE WAEL), A., i, 782.
- Pentamethylmaclurin.** See 2:4:6:3':4'-Pentamethoxybenzophenone.
- Pentane.** See Tetramethylmethane. dihydroxy-. See Pentane- $\alpha\delta$ -diol.
- cyclo***Pentanealdehyde** and its semicarbazone (WALLACH), A., i, 564.
- Pentanedicarboxylic acids.** See *iso*-Butylmalonic acid, Diethylmalonic acid, $\beta\beta$ -Dimethylglutaric acid, α -Methyl- α -ethylsuccinic acid, and Trimethylsuccinic acid.
- Pentane- $\alpha\delta$ -diol,** preparation of (SEMMELER), A., i, 785.
- Pentanetricarboxylic acid.** See $\alpha\gamma$ -Dimethyltricarballylic acid.
- Pentane- $\alpha\epsilon$ -tricarboxylic acid,** ethyl ester (KAY and PERKIN), T., 1647; P., 270.
- cyclo***Pentanone-4-carboxylic acid,** preparation of, and its oxime and semicarbazone (KAY and PERKIN), T., 1640; P., 270.
- cyclo***Pentanone-2:4-dicarboxylic acid,** ethyl ester, formation of (KAY and PERKIN), T., 1645; P., 270.
- 2-cycloPentanone-1-oxalic acid,** ethyl ester, and its semicarbazone (KÖRTZ, BIEBER, and SCHÜLER), A., i, 668.
- Pentaphenylethane** (GOMBERG and CONE), A., i, 414.
- Penta-salt,** formation of, at 83° (VAN'T HOFF, FARUP, and D'ANS), A., ii, 236.
- cyclo***Penteneacetic acid** (WALLACH), A., i, 563.
- cyclo***Pentenealdehyde** and its oxime (WALLACH), A., i, 564.
- Pentenedicarboxylic acids.** See $\alpha\gamma$ -Dimethylaconitic acid, $\alpha\beta$ -Dimethylglutaconic acid, $\alpha\gamma$ -Dimethylitaconic acid, α -Ethylitaconic acid, and Methyl-ethylmaleic acid.

- cycloPentene-o-quinone**, *tetrabromo* (JACKSON and RUSSE), A., i, 290.
- $\Delta\gamma$ -Pentene- $\alpha\gamma\delta$ -tricarboxylic acid**, anhydride and imide of. See Haematic acids.
- Pentenoic acid**. See $\beta\beta$ -Dimethyl-acrylic acid.
- Pentenyl alcohols**. See Dimethylallyl alcohol and Methylpropenylcarbinol.
- Penthiazole derivatives**, supposed (GABRIEL and COLMAN), A., i, 889.
- Pentosans**, formation and physiological rôle of, in plants (CALABRESI), A., ii, 883.
- Pentoses**, estimation of, volumetrically (JOLLES), A., ii, 203.
- Pepsin**, identity of, with rennin (SAWJA-LOFF), A., ii, 98.
- the supposed identity of, with rennin (SCHMIDT-NIELSEN), A., i, 720.
- action of Bacteria on (PAPASOTIRIOU), A., ii, 691.
- assay of, by the biuret reaction (COWIE and DICKSON), A., ii, 316.
- Peptic digestion**. See under Digestion.
- Peptides**, behaviour of, towards organic extracts (ABDERHALDEN and TERUCHI), A., ii, 464.
- rate of, in dogs (ABDERHALDEN and TERUCHI), A., ii, 293; (ABDERHALDEN and SAMUELY; ABDERHALDEN and BABKIN), A., ii, 464.
- behaviour of some, to ox-liver juice (ABDERHALDEN and RONA), A., ii, 873.
- See also Amino-acids, Dipeptides, and Polypeptides.
- Peptone** (STOOKEY), A., i, 327.
- proteid (STOOKEY), A., i, 327.
- Witte, amounts of nitrates and nitrites in, with special reference to the indole and cholera reaction (WHERRY), A., ii, 382.
- Peptones** from casein (SKRAUP and WITT), A., i, 916.
- Perchloric acid**. See under Chlorine.
- Percolator**, for use in assaying drugs (ELDRED), A., ii, 305.
- Perezone**. See Pipitzaholic acid.
- Perhydroanthracene**, preparation of (GODCHOT), A., i, 76.
- Periodic interrupter** (VILLIERS), A., ii, 521.
- relation between atomic weights and index of refraction (BISHOP), A., ii, 137.
- system, construction of the (PICCINI), A., ii, 78.
- and the methodical classification of the elements (ZENGELIS), A., ii, 276; (RUDORF), A., ii, 530.
- Permonosulphuric acid**. See under Sulphur.
- Peroxide acids**, preparation of, from the anhydrides of dibasic acids (STEAINS & CÖ.), A., i, 799.
- Peroxides**, preparation of (HARRIES, LANGHELD, THIEME, TÜRK, and WEISS), A., i, 225.
- electrolytic potential of certain (MAZZUCHELLI and BARBERO), A., ii, 647.
- Peroxydase**, influence of, on alcoholic fermentation (BACH), A., i, 470.
- influence of, on the activity of catalase (BACH), A., i, 470.
- Peroxydases**, as specifically-acting enzymes (BACH), A., i, 616, 919; (CHODAT), A., i, 779.
- Persimmons**, growth and ripening of (BIGELOW, GORE, and HOWARD), A., ii, 573.
- Petroleum**, Canadian, composition of (MABERY and QUAYLE), A., i, 394.
- Louisiana, acetylenic hydrocarbons in (COATES), A., i, 329.
- from the Mayaro-Guayaguare District, Trinidad, A., ii, 234.
- Roumanian, occurrence of ψ -cumene in (PONI), A., i, 9.
- light, composition of (BALBIANO and PAOLINI), A., i, 473.
- petrol distillates, and benzene, estimation of, in oil of turpentine, oil of pine and turpentine substitutes (BÖHME), A., ii, 583.
- estimation of sulphur in (GARRETT and LOMAX), A., ii, 123.
- Petterite** from Zeehan, Tasmania (ANDERSON), A., ii, 768.
- Phænogams**, stimulating action of calcium fluoride on (Asō), A., ii, 888.
- Phæophyceæ**, brown pigment of (MOLISCH), A., ii, 118.
- colouring matters of (TSVETT), A., i, 873.
- Pharmaceutical preparations**, influence of incandescent gas light on certain (SCHOORL and VAN DEN BERG), A., ii, 411.
- Phase rule**. See under Equilibrium.
- Phaseolunatin**, occurrence of, in Cassava (DUNSTAN, HENRY, and AULD), A., ii, 795.
- in common flax (DUNSTAN, HENRY, and AULD), A., ii, 794.
- Phaseolus lunatus**, cyanogenetic glucosides of (GUIGNARD), A., ii, 301; (KOHN-ABREST), A., ii, 625.
- poisoning as the result of eating the seeds of (ROBERTSON and WYNNE), A., ii, 112.

- Phellandrene**, oxidation of (WALLACH), A., i, 195.
- Phenacylacetone** and its 4-phenylsemi-carbazone (BORSCHE and FELS), A., i, 509.
- Phenanthraphenazine**, 10:12-dibromo- (JACKSON and RUSSE), A., i, 307.
- Phenanthraquinhydron**, 2:7-dinitro- (SCHMIDT and BAUER), A., i, 26.
- Phenanthraquinol**, 4-nitro-5-amino-, hydrochloride of (SCHMIDT and LEIPPRAND), A., i, 25.
- Phenanthraquinone**, reaction of (REICHARD), A., ii, 500.
- 4-amino-5-hydroxy-, 4-nitro-5-amino- and its diacetyl derivative, and 4-nitro-5-hydroxy- and its acetyl derivative (SCHMIDT and LEIPPRAND), A., i, 25.
- 4:5-dinitro-, conversion of, into the 4-amino-5-hydroxy-derivative (SCHMIDT and LEIPPRAND), A., i, 25.
- Phenanthrene**, fusion curves for mixtures of diphenylamine and (v. NARBUTT), A., ii, 147.
- derivatives (SCHMIDT and LEIPPRAND; SCHMIDT and BAUER), A., i, 25.
- new, syntheses and properties of (PSCHORR, HOFMANN, POPOVICI, QUADE, SCHÜTZ, and TAPPEN), A., i, 848.
- conversion of, into fluorene compounds (SCHMIDT and BAUER), A., i, 25.
- diazonide (HARRIES and WEISS), A., i, 228.
- Phenanthrene**, trihydroxy-, from hydroxycodeine (KNORR and HÖRLEIN), A., i, 877.
- 3:4:5-trihydroxy-, and its trimethyl derivative (VONGERICHTEN and DITTMER), A., i, 422.
- Phenanthrene-9-carboxylic acid**, 3-bromo- (PSCHORR and SCHÜTZ), A., i, 850.
- 2-hydroxy-, and its acetyl derivative (PSCHORR and QUADE), A., i, 851.
- Phenanthrene-9-carboxylic anhydride**, 8-amino- (PSCHORR and POPOVICI), A., i, 851.
- Phenanthrene-8:9-dicarboxylic acid** and its anhydride and imide (PSCHORR and TAPPEN), A., i, 850.
- Phenanthridine** methiodide, constitution of the cyanide and hydroxide from (TINKLER), T., 856; P., 135.
- Phenanthrols**, 2- and 3-, derivatives of (HENSTOCK), T., 1527; P., 235.
- 2-Phenanthryl ethyl ether** and its 10-amino- and 10-nitro-derivatives (HENSTOCK), T., 1528; P., 235.
- 3-Phenanthryl ethyl ether**, 10-amino- and 2:7-dibromo-10-nitro- (HENSTOCK), T., 1531; P., 236.
- 9-Phenanthrylmethylcarbinol** and its acetate (PSCHORR), A., i, 820.
- Phenetyltribenzoic acid**, constitution of (MICHAEL), A., i, 518.
- Phenetidine**, action of ethyl acetyl-succinate and ethyl diacetylsuccinate on (Rossi), A., i, 982.
- p-Phenetidineurethaneacetamide** (A. and L. LUMIÈRE and BARBIER), A., i, 245.
- β-Phenetidino-β-phenyl-α-lactic acids**, isomeric (ERLENMEYER and BARKOW), A., i, 237.
- Phenetole**, p-iodoxy- (LIEBRECHT), A., i, 257.
- Phenetoylacrylic acid** (KÓZNIEWSKI and MARCHLEWSKI), A., i, 759.
- Phenetylaldehyde**, p-thio-, preparation of, and its azine, phenylhydrazone, and semicarbazone (MONIER-WILLIAMS), T., 278; P., 22.
- p-Phenetol butyl ketone** and its semicarbazone (LAYRAUD), A., i, 433.
- Phenetyl-4-diazobisacetoxime** (BREWER, FRIEDEMANN, and MAI), A., i, 322.
- Phenol**, reactions of (KÜHL), A., i, 495.
- esters, *aci*-nitro-, quinonoid (HANTZSCH and GORKE), A., i, 352.
- toxicity of, compared with that of other substances (BOKORNY), A., ii, 480.
- estimation of, in sewage (KORN), A., ii, 808.
- Phenol**, *o*-amino-, oxidation products of (KEHRMANN and MATTISON), A., i, 210.
- p*-amino-, diacetyl derivative of, nitration of (REVERDIN and BUCKY), A., i, 748.
- mono- and di-benzoyl derivatives of, nitration of (REVERDIN and DELÉTRA), A., i, 165.
- isosuccinic acid derivative of, antipyretic action of (MALERBA), A., ii, 693.
- o*- and *p*-amino-, action of benzyl chloride on (BAKUNIN), A., i, 496.
- nitro-derivatives, mercury compounds of (HANTZSCH and AULD), A., i, 471.
- p*-nitro-, salts of, action of *tert*.-alkyl chlorides on (SPIEGEL and KAUFMANN), A., i, 833.

- Phenol, o-, m-, and p-nitro- and p-nitroso-**, relation between the absorption spectra and chemical constitution of (BALY, EDWARDS, and STEWART), T., 514; P., 35.
 relative rates of oxidation of (BRADSHAW), A., i, 360.
- 2:4-dinitro-**, solution equilibrium of, with aniline (KREMMANN), A., i, 834.
- 2:4:6-trinitro-**. See Picric acid.
- 4- and 6-nitro-3-amino-, and their N-acetyl derivatives, and 4:6-dinitro-3-amino-** (MELDOLA and STEPHENS), T., 924; P., 157.
- 5-nitro-2-amino-** (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 496.
- 2-nitro-4:6-diamino-, 4-N-acetyl derivative of, and its hydrochloride and diazo-derivative** (CASSELLA & Co.), A., i, 948.
- 4-nitro-2:6-diamino-, 6-N-acetyl derivative of** (CASSELLA & Co.), A., i, 165.
- 2:4-dinitro-6-amino-**. See Picramic acid.
- 2:3:5-trinitro-4-amino-, N-acetyl derivative of, and its use as a synthetical agent** (MELDOLA), T., 1935; P., 303.
- nitroso-**. See Benzoquinoneoxime.
- thio-**. See Phenyl mercaptan.
- Phenols**, preparation of, and their substitution products (SOCIÉTÉ CHIMIQUE DES USINES DU RHÔNE), A., i, 657.
 determination of the molecular weights of, by the use of benzoic anhydride (GASCARD), A., i, 722.
 equilibrium of binary solutions of, with amines (KREMMANN), A., ii, 266.
 catalytic action of the alkali and alkaline earth salts in the fixation of atmospheric oxygen by solutions of (FOUARD), A., i, 421.
 catalytic action of the rare earth haloids in the fixation of atmospheric oxygen by solutions of (FOUARD), A., i, 578.
 carboxylation of, by means of carbon dioxide (TIJMSTRA and EGGINK), A., i, 179.
 esterification of (HOUBEN), A., i, 520.
 condensation of, with acetylenic amides (MOUREU and LAZENNEC), A., i, 432.
 condensation of, with acetylenic nitriles (MOUREU and LAZENNEC), A., i, 276.
- Phenols, action of bromine and chlorine on** (ZINCKE and GRÜTERS), A., i, 172; (ZINCKE), A., i, 737; (ZINCKE and HUNKE), A., i, 738; (ZINCKE and BÖTTCHER; ZINCKE and GEIBEL), A., i, 739.
 action of chloroform and sodium hydroxide on, in acetone solution (BARGELLINI), A., i, 666.
 action of o-nitrobenzaldehyde on, in presence of hydrogen chloride (ZINCKE and SIEBERT), A., i, 515.
 additive compounds of, with p-nitroso-dimethylaniline (TORREY and GIBSON), A., i, 242.
- Phenols, o-amino-, oxidation products of** (KEHRMANN, MATTISON, URECH, and BÜHLER), A., i, 210.
diamino-, oxidation of (KEHRMANN and PRAGER), A., i, 967.
 chlorinated, of the dihydrobenzene series and their transformation products (AUWERS), A., i, 947.
nitro-, constitution and colour of (HANTZSCH), A., i, 353, 833; (V. GEORGIEVICS), A., i, 420; (KAUFFMANN), A., i, 577.
- o-Phenols**, constitution of (AUWERS), A., i, 838.
 containing strongly negative substituting groups, condensation products of, with organic bases (AUWERS and SCHRÖTER), A., i, 347.
 new brominated (AUWERS, JESCHECK, SCHRÖTER, MARKOVITS, and ROEVER), A., i, 354.
- Phenol-p-azo-o-nitrobenzaldehyde** and its phenylhydrazone (SACHS and KANTOROWICZ), A., i, 908.
- Phenol-6-carboxylic acid, 2:4-diamino-, N-(4)-acetyl derivative of, and its diazonium compound** (CASSELLA & Co.), A., i, 741.
- o-Phenoxyacetic acids**, substituted, action of phosphorus chlorides on (ANSCHÜTZ), A., i, 500, 508.
- Phenolcarboxylic chlorides**, action of benzene and aluminium chloride on free (ANSCHÜTZ), A., i, 516.
- Phenolphthalein**, decolorisation of a faintly alkaline solution of, by alcohol (COHN), A., i, 853.
 behaviour of, in the organism (KASTLE), A., ii, 473.
 salts, constitution of (GREEN and KING), A., i, 670.
- Phenolsulphonic acid, m-amino-, and its barium hydrogen salt** (GNEHM and KNECHT), A., i, 578.
trichloro-, and its salts (NOELTING and BATTEGAY), A., i, 222.

- o*-Phenolsulphonic acid**, salts (VIAL), A., i, 255.
- Phenol-4-sulphonic acid**, 3-amino-, and its anilide (SCHULTZ), A., i, 837.
- Phenol-6-sulphonic acid**, 2:4-diamino-, N-(4)-acetyl derivative of, and 2:4-nitroamino-, N-acetyl derivative of (CASSELLA & Co.), A., i, 741.
- Phenolsulphonic acids**, nitro- (GNEHM and KNECHT), A., i, 578, 835.
- Phenoltrisulphonic acid**, *o*-nitro- (GNEHM and KNECHT), A., i, 578.
- 1:2-Phenonaphthacridine** and 7-hydroxy-, synthesis of (BAEZNER and GARDIOL), A., i, 887; (BAEZNER, GUEORGUIEFF, and GARDIOL), A., i, 902.
- amino- and hydroxy-derivatives and their acyl derivatives and salts (BAEZNER, GARDIOL, and GUEORGUIEFF), A., i, 699.
- 9-amino-, synthesis of, and its nitrate (ULLMANN and BÜHLER), A., i, 44.
- Phenosafranines**, *s*- and *as*- (BARBIER and SISLEY), A., i, 51, 989.
- Phenothiazine**, 3-mono- and 3:9-diamino-, N-acetyl derivatives of, and their salts (KEHRMANN, MODE-BADZÉ, and VESELY), A., i, 307.
- Phenothioxin** and its dioxide and 2-carboxylic acid and its 4-amino- and 4-nitro-derivatives (MAUTHNER), A., i, 447.
- Phenoxyde**, aluminium (COOK), A., i, 495.
- sodium, formation of salicylic acid from (MOLL VAN CHARANTE), A., i, 665.
- Phenoxyacetic acid**, *p*-amino-, and its *N*-acetyl derivative, nitration of (REVERDIN and BUCKY), A., i, 748.
- Phenoxyacetylthiocarbimide** and its reactions (DIXON), T., 908; P., 147.
- β -Phenoxyacrylamides**, synthesis of β -substituted derivatives of (MOUREU and LAZENNEC), A., i, 432.
- β -Phenoxyacrylonitriles**, synthesis of β -substituted (MOUREU and LAZENNEC), A., i, 276.
- 4-Phenoxy-1-isobutylphthalazine** (WÖBELING), A., i, 48.
- Phenoxydi-*p*-tolylethylene** (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBERN-SIBBERS, and RIEBEL), A., i, 582.
- Phenoxymethyldiethylcarbinol** and its phenylurethane (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBERN-SIBBERS, and RIEBEL), A., i, 582.
- Phenoxyphenylacetamide** (BUCHERER and GROLEE), A., i, 351.
- Phenuvic acid** and its ethyl ester (BORSCHE and FELS), A., i, 509.
- Phenyl chlorocarbonate**, reaction of, with thiocarbamide (DIXON), T., 909; P., 148.
- chlorothioncarbonate and its reactions (RIVIER), A., i, 947.
- ether, metallic derivatives. See Phenoxides.
- o*-mono- and *oo'*-dihydroxy-, and their methyl ethers (ULLMANN and STEIN), A., i, 258.
- ethyl ether, amino-. See Phenetidine.
- ethyl and α -naphthyl sulphides (WUYTS), A., i, 257.
- ethyl thioncarbonate (RIVIER), A., i, 948.
- hydrogen selenide (STOECKER and KRAFFT), A., i, 568.
- mercaptan, *p*-amino-, and its *N*-acetyl and -benzoyl derivatives (HINSBERG), A., i, 655.
- methyl ether, amino-. See Anisidines.
- methyl thioether, *p*-amino-, *N*-acetyl derivative of (HINSBERG), A., i, 655.
- sulphide, *o*-amino-, and its sulphate and acetyl derivative and *o*-nitro- (MAUTHNER), A., i, 949.
- oo'*-dihydroxy- and its dimethyl and diacetyl derivatives (MAUTHNER), A., i, 421.
- o*-tolyl sulphide, *o*-nitro- (MAUTHNER), A., i, 949.
- p*-Phenyl sulphoxide** (SMILES and LE ROSSIGNOL), T., 706; P., 24, 87.
- Phenylacetanilide**, sulphur derivative (REISSERT and MORÉ), A., i, 827.
- Phenylacetic acid**, reaction of (NOELTING and KADERA), A., i, 593.
- Phenylacetic acid**, tetrabromo *p*-hydroxy-, and its methyl ester, and their acetyl derivatives, amide, and nitrile and its acetyl derivative and quinone (ZINCKE and BÖTTCHER), A., i, 166.
- tetrachloro-*p*-hydroxy- (ZINCKE and BÖTTCHER), A., i, 739.
- 2:6-dihydroxy-. See Homogentisic acid.
- dithio-. See Benzylcarbithionic acid.
- Phenylacetonitrile** (*benzyl cyanide*), condensations of (ATKINSON and THORPE), T., 1906; P., 281.
- action of acetyl bromide on (KUNCKELL and FLOS), A., i, 848.
- tetrachloro-*p*-hydroxy-, and its acetyl derivative (ZINCKE and BÖTTCHER), A., i, 739.
- α -Phenyl-3-acetoxy-*cinnamic acid***, 2-nitro- (PSCHORR and QUADE), A., i, 851.

- a*-Phenyl-4-acetoxy-3-methoxycinnamic anhydride, *o*-nitro-2-amino-** (PSCHORR and POPOVICI), A., i, 851.
- Phenylacetylene**, formation of, and its copper salts (STRAUS), A., i, 77.
- Phenylacetylquinol**, methyl ethers of (KAUFFMANN and GROMBACH), A., i, 286.
- Phenylacetyl*d*/thiocarbamic acid**, esters (JOHNSON, BATEMAN, PALMER, and BRAUTLECHT), A., i, 954.
- Phenylacridine derivatives**, synthesis of (ULLMANN and BRODIO), A., i, 188; (ULLMANN and ERNST), A., i, 205. perchlorate (VORLÄNDER), A., i, 906.
- 5-Phenylacridine**, chromate of, and 2:8-diamino- and its additive salts, and bromo- and chloro-derivatives (DUNSTAN and OAKLEY), A., i, 383. methyl derivatives of (SCHMID and DECKER), A., i, 305.
- 5-Phenylacridine**, 3-amino-, and its acetyl derivative, 3:7-diamino-, 3-nitro-, and 3-nitro-7-amino. (ULLMANN and ERNST), A., i, 205. 1:3-diamino- and its diacetyl derivative, 1:3-dinitro-, 1:3-dinitro-7-amino-, and 1:3-dinitro-9-hydroxy- (ULLMANN and BRODIO), A., i, 189. 2-*p*-diamino-. See Chrysanthine. *p*-amino-2-hydroxy-. See Chryso-phenol. *p*-bromo-, and its salts (DUNSTAN and STUBBS), A., i, 698.
- 5-Phenylacridine-*o*-carboxylic acid**, quaternary salts, action of amines on (DECKER and SCHENK), A., i, 304. ethyl ester, and its additive derivatives (DECKER and SCHENK), A., i, 304.
- Phenylalkylcamphorylmethanes** (HALLER and BAUER), A., i, 441.
- Phenylallene**, attempts to synthesise (KLAGES and KLENK), A., i, 638.
- a*-Phenylallyl alcohol**, bromide, chloride, chlorodibromide, and ethyl ether (KLAGES and KLENK), A., i, 638.
- Phenylamic acids**, action of phenylcarbimide on (ABATI and GALLO), A., i, 944.
- Phenylamino-**. See Anilino.
- Phenyl-5-amino-2-hydroxybenzylethylamine** (EINHORN, BISCHKOPFF, and SZELINSKI), A., i, 247.
- Phenylamlyenes**, iodohydrins of, and their reactions with silver nitrate (TIFFENEAU), A., i, 966.
- Phenylangelicalactone**, constitution of (THIELE and WEDEMANN), A., i, 725. preparation of (GOLDBERG), A., i, 426. and *p*-nitro- (GOLDBERG & ULLMANN), A., i, 953. *p*-bromo- (ULLMANN and MAAG), A., i, 459.
- 2-Phenylanthroxan**, 4-chloro-*p*-hydroxy-, and its acetyl derivative (ZINCKE and SIEBERT), A., i, 515.
- Phenylation** in presence of copper as a catalyst (GOLDBERG), A., i, 426.
- Phenylaziminobenzene carboxylic acid** and its ethyl ester (WERNER and PETERS), A., i, 221.
- Phenylazinotrosobenzene**, amino-, and its acetyl derivative (WERNER and PETERS), A., i, 221.
- Phenylazinotrosobenzene carboxylic acid** and its ethyl ester, hydrazide, and azoimide (WERNER and PETERS), A., i, 220.
- Phenylazinotrosobenzene urethane** (WERNER and PETERS), A., i, 221.
- Phenylazoacetamide** (FEIST), A., i, 332.
- 1-Phenyl-3-azophenyl-thiobiazolone**, -*d*-thiobiazolone, and **2-thioaziethane** (ORMEROD), P., 206.
- Phenylazo-**. See also Benzeneazo.
- 1-Phenylbenzimidazole**, 5-nitro-, and its salts (v. WALTHER and KESSLER), A., i, 899.
- 2-Phenylbenzimidazole**, 6-chloro-, and its carbinol, 6-chloronitro-, and 6-nitro- (FISCHER and LIMMER), A., i, 897.
- Phenylbenzimidazole-*o*-carboxylic acid** and its ethyl ester (THIELE and FALK), A., i, 751.
- 2-Phenylbenzoxazole** and its derivatives (FISCHER and RÖMER), A., i, 541.
- 2:2-Phenyl-O-benzoylhydroxy-1:3-benzoxazone** (McCONNAN and TITHERLEY), T., 1338; P., 239.
- Phenylbenzyl-amine, -methylamine, and -aniline**, 2:4-dinitro- (MULDER), A., i, 491.
- 2-Phenyl-1-benzylbenzimidazole**, 6-chloro- and its dinitro-derivative (FISCHER and LIMMER), A., i, 895.
- Phenylbenzyl-*p*-diethylaminobenzylidenehydrazine** (SACHS and MICHAEILIS), A., i, 575.
- 8-Phenyl-7-benzylguanine** (TRAUBE and NITHACK), A., i, 216.
- Phenylbenzylmethylammonium compounds**, influence of constitution on the rotatory power of (THOMAS and JONES), T., 286; P., 11.

- Phenylbenzylmethylisobutylammonium hydroxide**, activation of (WEDEKIND and FRÖHLICH), A., i, 14.
- d-Phenylbenzylmethylpropylammonium salts** (WEDEKIND), A., i, 161.
- iode**, rate of auto-racemisation of (WEDEKIND), A., i, 419.
- 8-Phenyl-7-benzyl-3-methylxanthine** and -1:3-dimethylxanthine and its hydroxy-derivatives (TRAUBE and NITHACK), A., i, 215.
- β-Phenylborneol** (HALLER and BAUER), A., i, 441.
- α-Phenylbutaldehyde** and its oxime and semicarbazone (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBBERN-SIBBERS, and RIEBEL), A., i, 583.
- A²-Phenylbutene** (STRAUS and MÜLLER), A., i, 79.
- α-Phenyl-Δ^a-butene-γ-ol** and **α-Phenyl-α-butinene-γ-ol** and their reduction (KLAGES, GIESER, and LAUCK), A., i, 661.
- β-Phenylbutylene αβ-glycol** and its anhydride (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBBERN-SIBBERS, and RIEBEL), A., i, 582.
- Phenylbutylene oxide** (TIFFENEAU), A., i, 966.
- Phenyl butyl ketone** and its oxime and semicarbazone (LAYRAUD), A., i, 432.
- α-Phenylbutyric acid**, **α-amino-**, and its nitrile, hydrochloride of (JAWELOFF), A., i, 427.
- γ-Phenyl-n-butyric acid** (SEMMLER), A., i, 298.
- α-amino- and α-bromo-** (FISCHER and SCHMITZ), A., i, 183; (KNOOP and HOESSLI), A., i, 481.
- β-imino-α-cyano-**, ethyl ester, formation and constitution of (ATKINSON and THORPE), T., 1916; P., 282.
- Phenylbutyric acids** and their **α-amino-derivatives** (FISCHER and SCHMITZ), A., i, 584.
- β-Phenylcamphene** (HALLER and BAUER), A., i, 441.
- Phenylcamphylpyrazole**, **p-bromo-**, and its **carboxylic acid** and its ethyl ester (TINGLE and ROBINSON), A., i, 904.
- Phenylcamphylpyrazolecarboxylic acid** (TINGLE and ROBINSON), A., i, 903.
- Phenyl-2-camphylsulphone**, 1:4-dihydroxy- (BORSCHE and LANGE), A., i, 679.
- Phenylcarbamic acid derivatives**, crystallography of (JAEGER), A., i, 15, 500.
- barium salt (MOHR), A., i, 253.
- phenyl ester (SCHOLL and NYBERG), A., i, 656.
- Phenylcarbamide**, condensation of, with ethyl acetacetate (KIESSLING), A., i, 946.
- p-bromo-, N-benzoyl derivative**, a by-product in the preparation of benzoylbromoamide (MOORE and CEDERHOLM), A., i, 831.
- chloro-derivatives (DOHT), A., i, 419.
- Phenylcarbamidodiphenylmethenyl-amine** and its decomposition with formation of phenylcarbimide, and **p-chloro-** (v. WALTHER), A., i, 212.
- Phenylcarbimide**, behaviour of carboxylic acids towards (DIECKMANN and BREEST), A., i, 832.
- action of, on methylnitroamine (SCHOLL and HOLDERMANN), A., i, 767.
- action of, on certain phenylamic acids (ABATI and GALLO), A., i, 944.
- Phenylcarbithionic acid** and its salts and **p-bromo-derivative** (HOUBEN and POHL), A., i, 847.
- β-Phenylcarbostyryl**, **p-bromo-** (PSCHORR and SCHÜTZ), A., i, 850.
- 3-Phenylisocarbostyryl**, **2-amino-**, and its benzylidene derivative (WÖLBLING), A., i, 49.
- 2-Phenylcarveol**. See **2-Phenyl-Δ^{6,8(9)}-mentha diene-ol**.
- 3-Phenyleinchoric acid** and its salts, esters, amide, anilide, and hydrazide (HÜENER), A., i, 383.
- α-Phenylcinnamic acid**, phenyl ester (KOHLER and HERITAGE), A., i, 96.
- 2-amino-3-hydroxy-** (PSCHORR and QUADE), A., i, 851.
- 2-amino-5-hydroxy- and 2-nitro-5-hydroxy-** (PSCHORR and QUADE), A., i, 851.
- p-bromo-2-amino-, and p-bromo-2-nitro-** (PSCHORR and SCHÜTZ), A., i, 850.
- p-hydroxy-**, and its methyl ester, and their acetyl derivatives (ZINCKE and GEIBEL), A., i, 739.
- o-2-dinitro-** (PSCHORR and POPOVICI), A., i, 851.
- α-Phenylcinnamic anhydride**, **o-2-diamino-** (PSCHORR and POPOVICI), A., i, 851.
- 10-Phenylceroxene** (DECKER and SASSU), A., i, 689.
- α-Phenylcoumaran**, **p-hydroxy-**, and its acetyl derivative and methyl ether (WERNER, SCHORNDORFF, and CHOWER), A., i, 181.
- 3-Phenylisocoumarin**, action of hydrazine on (WÖLBLING), A., i, 49.
- Phenylcrotonic acids**, **αβ-** and **βγ-** (VORLÄNDER and STRUNCK), A., i, 367.
- Phenylisocrotonic acid**, esters (VORLÄNDER and STRUNCK), A., i, 366.

- 2-Phenyl-p-cymene** (KLAGES and SOMMER), A., i, 567.
- 5-Phenyl-2:4-dibenzylpyrimidine**, 6-amino-. See Cyanbenzyline.
- Phenyldiethylaminodimethylcarbinol** (RIEDEL), A., i, 632.
- 1-Phenyl-4:4-diethyl-5-pyrazolone**, 3-hydroxy-, and its imide and acetyl and methyl ethers (CONRAD and ZART), A., i, 609.
- Phenyldihydroanthranil** (BAEZNER and GARDIOL), A., i, 673.
- Phenyldihydronaphthaquinolinedicarboxylic acid**, ethyl ester (SIMON and MAUGUIN), A., i, 888.
- 2-Phenyl-1:2-dihydrophthalazine**, 1-hydroxy-, and its ethers (THIELE and FALK), A., i, 751.
- Phenyldihydroresorcin** and its oximes (GITTEL), A., i, 171.
- 1-Phenyl-4:5-dihydro-1:2:4-triazole**, 3-amino-5-thio-. (FROMM and SCHNEIDER), A., i, 714.
- Phenyl- α -hydroxybenzylfulvene** (THIELE and BALHORN), A., i, 640.
- α -Phenyl-3:4-dimethoxyceinnamic acid**, *o*-bromo-2-amino- and *o*-bromo-2-nitro- (PSCHORR and POPOVICI), A., i, 850.
- 1-Phenyl-2:5-di-*p*-methoxyphenyl-1:3:4-triazole** (STOLLÉ and BAMBACH), A., i, 710.
- β -Phenyl- α -dimethyl- β -allyl methyl ketone** and its semicarbazone (COURTOT), A., i, 556.
- Phenyldiethylaminodimethylcarbinol** (RIEDEL), A., i, 632.
- Phenyl- γ -dimethylaminopropyl ether** and its picrate (KNORR and ROTH), A., i, 457.
- Phenyldimethylammonium iodide**, action of chlorine on (WERNER), T., 1638; P., 258.
- 2-Phenyl-1:3-dimethylbenzimidazole**, 6-chloro- and 6- and *o*-, *m*-, and *p*-nitro-, salts and carbinols of (FISCHER and LIMMER), A., i, 897.
- 2-Phenyl-1:3-dimethyl-benzimidazolium iodide** and **-2:3-dihydrobenzimidazole-2-ol** and its salts (FISCHER and RÖMER), A., i, 540.
- 1-Phenyl-2:3-dimethylbenzimidazolol**, 5-nitro- (V. WALTHER and KESSLER), A., i, 898.
- β -Phenyl- α -dimethyl- $\Delta\beta$ -butenoic acid** (*phenyldimethylvinylacetic acid*) and its derivatives (COURTOT), A., i, 555.
- γ -Phenyl- $\beta\beta$ -dimethyl- $\Delta\gamma$ -butenol** and its acetate (COURTOT), A., i, 556.
- Phenyldimethylbutenolide** (BLAISE and COURTOT), A., i, 928.
- β -Phenyl- α -dimethylbutyric acid** (*β -phenyl- β -methylpivalic acid*), $\beta\gamma$ -dibromo-, and β -hydroxy-, ethyl ester (COURTOT), A., i, 555.
- β -Phenyl- α -dimethylbutyrolactone**, β -bromo- and γ -hydroxy- (BLAISE and COURTOT), A., i, 928.
- β -hydroxy-** (COURTOT), A., i, 927.
- Phenyldimethylethylene** and its dibromide (BLAISE and COURTOT), A., i, 794.
- 1-Phenyl-2:4-dimethyl-3-ethylpyrazolone** (EMMERLING and KRISTELLER), A., i, 623.
- δ -Phenyl- α -dimethyl-fulgenic acid** and **-fulgide** (STOBBE and LENZNER), A., i, 22.
- o*-, *m*-, and *p*-nitro-, and their salts** (STOBBE and LEUNER), A., i, 183.
- δ -Phenyl- α -dimethyl- $\Delta\beta$ -pentenoic acid** (*γ -benzyl- α -dimethylvinylacetic acid*) and its derivatives (BLAISE and COURTOT), A., i, 554.
- 1-Phenyl-2:3-dimethylpyrazolone**. See Antipyrine.
- β -Phenyl- α -dimethylsuccinic acid**, hemialdehyde oxime and semicarbazone, and hemialdehydeazine of (BLAISE and COURTOT), A., i, 928.
- Phenyldimethylsulphine platinichloride** (KEHRMANN and DUTTENHÖFER), A., i, 949.
- Phenyldimethylthiosemicarbazide** (KNORR and KÖHLER), A., i, 817.
- δ -Phenyl- α -dimethyl- γ -valerolactone**, β -hydroxy- (BLAISE and COURTOT), A., i, 554.
- 8-Phenyl-1:3-dimethylxanthine** (TRAUBE and NITHACK), A., i, 215.
- Phenyldinaphthaacridines** and their additive salts (SENIER and AUSTIN), T., 1395; P., 241.
- Phenyldiphenylenemethyl peroxide**. See 9-Phenylfluoryl peroxide.
- 1-Phenyl-4:4-dipropyl-5-pyrazolone**, 3-hydroxy-, and its dipropylmalonic phenylhydrazide (CONRAD and ZART), A., i, 609.
- p*-Phenylenebis-*o*-aminobenzoic acid** (GOLDBERG & ULLMANN), A., i, 954.
- o*-Phenylenecarbamide**, *p*-chloro- (FISCHER and LIMMER), A., i, 895.
- o*-Phenylenediamine**, 4:6-dibromo-, and its salts and diacetyl derivative (JACKSON and RUSSE), A., i, 307.
- p*-Chloro-, dibenzoyl derivative of, and *p*-chloronitro-, diacetyl and dibenzoyl derivatives of** (FISCHER and LIMMER), A., i, 895.

- m-Phenylenediamine**, condensation of, with methyldihydroresorcin (HAAS), T., 577.
monoacyl derivatives, action of nitrous acid on (MORGAN and MICKLETHWAIT), T., 1292.
- m-Phenylenediamine**, 4-amino-, *N*-acetyl derivative, action of carbonyl chloride on (CASSELLA & Co.), A., i, 712.
4:6-dinitro- (REITZENSTEIN and ROTHSCHILD), A., i, 455.
- Phenylenediamines**, *m*- and *p*-, condensation of, with dimethyldihydroresorcin and with chloroketodimethyltetrahydrobenzene (HAAS), T., 387; P., 63.
- Phenylenediamines**, diazo-derivatives of (VIGNON), A., i, 223.
- m-Phenylenediaminesulphonic acid**, nitro-, azo-dyes from (BADISCHE ANILIN- & SODA-FABRIK), A., i, 322.
- p-Phenylenedianthrancilic acid** (ULLMANN and MAAC), A., i, 459.
- p-Phenylenedi-*a*-ethylamine**. See *p*-Diethylbenzene, *di-a*-amino-
- p-Phenylenedimalonamic acid**, ethyl ester (MEYER and V. LUTZAU), A., i, 765.
- o-Phenylenedimethyldiamine**, *p*-chloronitro-, and its salts (FISCHER and LIMMER), A., i, 896.
- p-Phenylene-*as* dimethyldiaminethiosulphonic acid**, action of formaldehyde on (SCHMIDT), A., i, 711.
- p-Phenylenedi-5-methylpyrazole** (BEREND and HERMS), A., i, 854.
- 3:3'-*p*-Phenylenedi-1-phenylpyrazolone** (BEREND and HERMS), A., i, 854.
- Phenylenediphthalimides**, *o*- and *p*- (MEYER and JAEGER), A., i, 767.
- m-Phenylenedisabacic acid**, ethyl ester (MEYER and MAIER), A., i, 766.
- p-Phenylenediisosuccinamic acid**, ethyl ester (MEYER and JAEGER), A., i, 766.
- m-Phenylenedisuccinamide** (MEYER and V. LUTZAU), A., i, 766.
- o-Phenylenemalonamide** (MEYER and V. LUTZAU), A., i, 765.
- o-Phenylenesebacamide** (MEYER and MAIER), A., i, 766.
- o-Phenylenesisosuccinimide** (MEYER and JAEGER), A., i, 766.
- o-Phenylenethiocarbamide**, *p*-chloro- (FISCHER and LIMMER), A., i, 895.
- α-Phenylethylamine** and its formyl derivative (WALLACH), A., i, 160.
- 2-Phenylethylamino-5-methyl-4:5-di-hydrothiazole** and its platinichloride (YOUNG and CROOKES), T., 70.
- p-Phenylethyl butyl ketone** and its oxime and semicarbazone (LAYRAUD), A., i, 483.
- Phenylethyldichloroacetal** (ODDO and MAMELI), A., i, 135, 620.
- 5-Phenyl-10-ethyldihydroacridine**, 5-hydroxy-, and its ethyl ether (SCHMID and DECKER), A., i, 306.
- s-Phenylethylhydrazine** and its oxalate (KNORR), A., i, 893.
- Phenylethyldenehydrazine**. See Acetaldehydephenylhydrazone.
- Phenylethyldenequinone**, bromo-derivatives (ZINCKE and GEIBEL), A., i, 740.
- 2-Phenyl-3-ethylisoindolinone**, 3-hydroxy- (BÉIS), A., i, 884.
- Phenyl ethyl ketone**. See Propiophenone.
- γ-Phenylethylmalonic acid** and its ethyl ester and α -bromo- (FISCHER and SCHMITZ), A., i, 182, 584.
- 2-β-Phenylethylquinoline**, 5-, 6-, and 8-amino-, and their additive salts (SCHMIDT), A., i, 39.
β-hydroxy-, and its salts (BENRATH), A., i, 535.
- Phenylethyluramil** (MÖHLAU and LITTER), A., i, 612.
- Phenylfluoryl peroxide** (GOMBERG and CONE), A., i, 822; (STAUDINGER), A., i, 824.
- α-Phenyl-γ-2-furylpropane**. See Tetrahydrocarline oxide.
- Phenylgallacetophenone** (*trihydroxy-deoxybenzoin*) and its oxime and iso-nitroso-derivatives (NOELTING and KADIERA), A., i, 593.
- Phenylglycinamide**, *p*-hydroxy- (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 658.
- Phenylglycine** and its ethyl ester, amide, and salts, and its reaction with ethyl chlorocarbonate (A. and L. LUMIÈRE and BARBIER), A., i, 245.
- Phenylglycine-2-carboxylic acid**, 5-nitro-, and its salts (SCHWARZ), A., i, 90.
- Phenylglycine-*o*-sulphonic acid**, derivatives of (BRADSHAW), A., i, 348.
- Phenyl group**, migration of the (TIFFENEAU), A., i, 965.
migration of the, in halohydrins and α -glycols (TIFFENEAU), A., i, 662.
- Phenylhexenyl alcohol**. See γ -Phenyl- $\beta\beta$ -dimethyl- $\Delta\gamma$ -butenol.
- γ-Phenyl-*n*-hexoxic acid**, β -imino- α -cyano-, ethyl ester, formation and constitution of (ATKINSON and THORPE), T., 1926; P., 282.
- Phenylhydrazine**, condensation of, with ethyl 4-chloro-3-nitrobenzoate (WERNER and PETERS), A., i, 220.
action of, on unsaturated disulphides (FROMM and SCHNEIDER), A., i, 714.

- Phenylhydrazine** as a reducing agent in organic chemistry (PLANCHER), A., i, 111.
reductions with (PUXEDDU), A., i, 957.
compounds of, with magnesium bromide (MENSCHUTKIN), A., i, 943.
compounds of, with metallic thiocyanates (GROSSMANN and HÜNSELER), A., i, 9.
- Phenylhydrazineketo-**. See Ketophenylhydrazine.
- 2-Phenylhydrazinodiethylbarbituric acid** (EINHORN), A., i, 539.
- β -Phenylhydrazino- β -phenyl- α -lactic acids** and anhydrides, isomeric (ERLENMEYER and BARKOW), A., i, 237.
- Phenylhydrazones** of α -diketones and reducing sugars, thermochemistry of (LANDRIEU), A., ii, 270.
- 3-Phenyl-1-hydronone-2-propionic acid**, 3-hydroxy-, lactone of (STOBBE and GOLLÜCKE), A., i, 361.
- 1-Phenylhydrocotarnine** (FREUND and REITZ), A., i, 601.
- Phenylhydroxylamine**, *m*-nitro- (BRAND), A., i, 80.
- γ -Phenyl- α -hydroxymethylhydantoin** (LEUCHS and GEIGER), A., i, 806.
- Phenyl-5-hydroxy-1:2-naphthiminazole-7-sulphonic acid**, amino- (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 714.
- α -Phenyl- α' -4-hydroxyphenylethane**, resolution of, by *l*-menthylcarbimide (PICKARD and LITTLEBURY), T., 467; P., 71.
- 1-Phenyl-3-hydroxyphenyl-5-methyl-pyrazole-4-carboxylic acid** and its lactone (MINUNNI and LAZZARINI), A., i, 388.
- Phenylhydroxyvalerolactone** and its diacetyl and *p*-nitrobenzoyl derivatives (THIELE and WEDEMANN), A., i, 726.
- Phenylimesatine**, *p*-amino- and *p*-hydroxy- (MÖHLAU and LITTER), A., i, 611.
- 2-Phenylimino-5:5-diethylbarbituric acid** and *p*-chloro-, and *5:5-dimethyl-barbituric acid* (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 987.
- 2-Phenyliminodi-methyl- and -ethyl-barbituric acids** (EINHORN), A., i, 538.
- 2-Phenylimino-3:4-dimethyl-2:3-di-hydrothiazole** and its platinichloride and hydrolysis (YOUNG and CROOKES), T., 65.
- 3-Phenylimino-1-methyl- $\Delta^{3:5}$ dihydro-benzene, 5-hydroxy-*m*-amino-** (HAAS), T., 577.
- 2-Phenylimino-5-methyltetrahydrothiazole** (YOUNG and CROOKES), T., 68.
- Phenyliminophenylamino-** See Anilinophenylimino-.
- 2-Phenylindazole**, chloro-3-hydroxy- (FREUNDLER), A., i, 544.
- γ -Phenyl- α -indonepropionic acid** (STOBBE and GOLLÜCKE), A., i, 361.
- Phenylisoprene** and its bromo-derivatives (COURTOT), A., i, 927.
- β -Phenyl- α -lactic acid, β -amino-, and its derivatives and isomerides** (ERLENMEYER and BARKOW), A., i, 237.
- β -Phenyl- β -lactic acid** and its halogen derivatives, stereochemistry of (ERLENMEYER), A., i, 274.
- Phenyl- β -lactomethyl ketone**, *o*-nitro-, soluble preparations of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 97.
- 2-Phenyl- $\Delta^{6:8(9)}$ -menthadiene-2-ol** and $-\Delta^{2:6,8(9)}$ -menthatriene (KLAGES and SOMMER), A., i, 567.
- 5-Phenyl-3-methylacridine**, 2 amino-8-hydroxy-, and its hydrochloride and acetyl derivative (ULLMANN and FITZENKAM), A., i, 46.
- β -Phenyl- β -methylacrylic acid, α -cyano-** (KNOEVENAGEL), A., i, 482.
- Phenylmethyllallylammonium compounds**, influence of constitution on the rotatory power of (THOMAS and JONES), T., 297; P., 11.
- Phenylmethylenodimethylcarbinol** and its dibenzoyl derivative (RIEDEL), A., i, 632.
- 2-Phenylmethylamino-5-methyl-4:5-dihydrothiazole** and its platinichloride and picrate (YOUNG and CROOKES), T., 70.
- 1-Phenyl-2-methylbenziminazole**, 5-amino-, and its salts, acetyl, benzeneazo-, phenylcarbamide, thiocarbamide, and *o*- and *p*-nitrobenzylidene derivatives, and 5-nitro- and its salts (v. WALTHER and KESSLER), A., i, 898.
- 4:7-dinitro-6-hydroxy-**, and **4:7-m-trinitro-6-hydroxy-**, synthesis of (MELDOLA), T., 1939.
- 1-Phenyl-3-methylbenziminazolol**, 5-nitro- (v. WALTHER and KESSLER), A., i, 899.
- α -Phenyl- γ -methyl- Δ^{α} -butene- γ -ol** and its reduction (KLAGES, GIESER, and LAUCK), A., i, 662.
- α -Phenyl- β -methylbutyl alcohol** and its acetate (BLAISE and COURTOT), A., i, 795.

- α -Phenyl- β -methylbutyric acid, $\alpha\beta$ -di-bromo-** (BLAISE and COURTOT), A., i, 795.
- Phenylmethylcarbamic acid and its nitro-derivatives, esters, crystallography of** (JAEGER), A., i, 15.
- Phenylmethylcarbamide, isomeric nitro-derivatives** (SCHOLL and HOLDERMANN), A., i, 767.
- β -Phenyl- α -methylcarbamide, α -nitro-, conversion of, into *s*-nitrophenylmethylcarbamide (SCHOLL and NYBERG), A., i, 656.**
- 5-Phenyl-10-methyldihydroacridine-*o*-carboxylic acid, 5-amino-, lactams of** (DECKER and SCHENK), A., i, 305.
- 9-Phenyl-10-methyldihydroanthracene, 9:10-dihydroxy-** (GUYOT and STAEHLING), A., i, 18.
- 1-Phenyl-2-methyl-2:3-dihydro-1:2:4-triazoles, 3- and 5-, 5- and 3-amino-thiol-** (FROMM and SCHNEIDER), A., i, 715.
- 1-Phenyl-4-methyl-3-ethylpyrazolone** (EMMERLING and KRISTELLER), A., i, 623.
- 2-Phenyl-5-methylfuran** (BORSCHE and FELS), A., i, 509.
- β -Phenyl- α -methylglycidic acid, ethyl ester** (DARZENS), A., i, 137.
- 4-Phenyl-1-methyl-4-cyclohexanol** and its phenylcarbamate (SABATIER and MAILHE), A., i, 254.
- 3-Phenyl-1-methyl- Δ^6 -cyclohexene-5-one-2-carboxylic acid, ethyl ester, and its semicarbazone** (RABE and SPENCE), A., i, 89.
- Phenylmethylhydrazine and its oxalate** (KNORR), A., i, 893.
- 2-Phenyl-3-methylisoindolinone, 3-hydroxy-** (BÉIS), A., i, 884.
- Phenylmethylnitroamine, 2:4:6-trinitro-** (JAEGER), A., i, 15.
- 5-Phenyl-3-methylisooxazole-4-azobenzene-*p*-azoacetoacetic acid, ethyl ester** (BÜLOW and BUSSE), A., i, 717.
- 5-Phenyl-3-methylisooxazole-4-azobenzene-*p*'-azo-1'-phenyl-3'-methyl-5'-pyrazolone** (BÜLOW and BUSSE), A., i, 718.
- α -Phenyl- γ -methyl- Δ^{β} -pentene and its nitrosylchloride and - $\Delta^{\alpha\gamma}$ -pentadiene** (KLAGES, GIESER, and LAUCK), A., i, 662.
- α -Phenyl- γ -methyl- Δ^{α} -pentene γ -ol** (KLAGES, GIESER, and LAUCK), A., i, 662.
- 7-Phenyl-9-methylpheno- $\alpha\beta$ -naphth-acridine, 10-hydroxy-, and its hydrochloride** (ULLMANN and FITZENKAM), A., i, 45.
- 1-Phenyl-5-methyl-2-isopropenylcyclohexane** (KLAGES and SAUTTER), A., i, 490.
- Phenylmethylpyrazolone, condensation of, with ethyl acetoacetate** (STOLLÉ), A., i, 48.
- 1-Phenyl-3-methyl-5-pyrazolone and *p*-nitro-** (FEIST), A., i, 332.
- oxidation of, in presence of benzaldehyde, and its compound with hydrobenzamide** (BETTI), A., i, 985.
- 1-Phenyl-3-methylpyrazoloneazobenzene, bromo-derivatives** (EIBNER and LAUE), A., i, 613.
- 1-Phenyl-3-methyl-5-pyrazolone-4-azobenzene-*p*-4'-azobenzoylacetone** (BÜLOW and BUSSE), A., i, 718.
- 2-Phenyl-5-methylpyrrole-3-carboxylic acid, ethyl ester** (BORSCHE and FELS), A., i, 509.
- 1- β -Phenylmethylthiocarbamido-2:5-dimethylpyrrole-3:4-dicarboxylic acid, ethyl ester** (BÜLOW and SAUTER-MEISTER), A., i, 314.
- Phenylmethylthioncarbamic acid, phenyl ester** (RIVIER), A., i, 948.
- 8-Phenyl-3-methylxanthine, hydroxy-** (TRAUBE and NITHACK), A., i, 215.
- 2-Phenyl-2:3-naphthaglyoxaline and 1-amino-, and their additive salts and *N*-acetyl derivative of the amino-compound** (FRANZEN), A., i, 706.
- α -Phenylnaphthalene** and its bromo-derivatives, formation of (STRAUS and MÜLLER), A., i, 78.
- 2-Phenylnaphthalene, 1:3-diamino-**, formation of, and its hydrochloride and acetyl derivatives (ATKINSON and THORPE), T., 1934; P., 282.
- Phenylnaphthalenedicarboxylic acid, constitution of** (MICHAEL), A., i, 518.
- 2-Phenyl- β -naphthaquinoline and its derivatives and 4-carboxylic acid** (SIMON and MAUGUIN), A., i, 888.
- 2-Phenyl- β -naphthaquinoline-3:4-dicarboxylic acid and its esters, salts, and anhydride** (SIMON and MAUGUIN), A., i, 887.
- Phenylnaphthaxanthen, *m*-nitro-, compound of, with benzene** (WERNER and SUMMERER), A., i, 437.
- Phenylnaphthiminazoles, amino-hydroxy-derivatives of** (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 713.
- Phenyl-1:2-naphthiminazole-5:7-disulphonic acid, amino-** (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 714.

- μ -Phenyl-1:2-naphthiminazole-7-sulphonic acid**, 5-hydroxy-, and *p*-nitro-5-hydroxy- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 900.
- 2-Phenylnaphth-peri-oxazole, tribromo-** (FICHTER and GAGEUR), A., i, 840.
- 9-Phenyl-9- α -naphthylfluorene**, *p*-amino-, and its hydrochloride (ULLMANN and v. WURSTEMBERGER), A., i, 77.
- Phenylnaphthyl-1:2-triazole-3:8-disulphonic acid**, *p*-amino- (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 906.
- Phenyl- α -nitrocinnamic acid**, products of dehydration of, and the products which accompany this acid when prepared by Perkin's synthesis (BAKUNIN and PARLATI), A., i, 664.
- Phenyl-5-nitro-2-hydroxybenzylethylamine** (EINHORN, BISCHKOPFF, and SZELINSKI), A., i, 247.
- Phenyl- α -nitroindone**, oxime and phenylhydrazone of (BAKUNIN and PARLATI), A., i, 665.
- Phenylnitrolic acid** (WIELAND and SEMPER), A., i, 643.
- Phenyl- α -nitrophenylene-ethylene (phenyl- α -nitrophenylacrylene)** (BAKUNIN and PARLATI), A., i, 664.
- Phenylosazones** of α -diketones and reducing sugars, thermochemistry of (LANDRIEU), A., ii, 270.
- Phenylloxamic acid**. See Oxanilic acid.
- Phenylloxamide**. See Oxanilamide.
- 3-Phenylisooxazolidone**, 2-hydroxy- (POSNER), A., i, 955.
- 3-Phenylisooxazalone** and its bromo-, nitro-, and acetyl derivatives (POSNER), A., i, 955.
- α -Phenyl- $\Delta\alpha$ - and - $\Delta\beta$ -pentenes and their bromides** (KLAGES, GIESER, and LAUCK), A., i, 661.
- α -Phenyl- $\Delta\alpha$ -pentene- γ -ol and β -bromo-, and α -Phenyl- α -pentinene- γ -ol and their reduction** (KLAGES, GIESER, and LAUCK), A., i, 661.
- 1-Phenyl- Δ^1 -cyclopentene-3-one** (BORSCHÉ and FELS), A., i, 509.
- δ -Phenyl- $\Delta\beta$ -pentenoic acid**, ethyl ester (MICHAEL and GARNER), A., i, 275.
- 7-Phenyl-1:2- and -2:1-phenonaphth-acridines**, 9-amino- and 9-nitro- (ULLMANN and ERNST), A., i, 205.
- 9:11-dinitro-** (ULLMANN and BROIDO), A., i, 189.
- Phenyl- ρ -phenylenemethyldiamine**, *di*- and *tri*-nitro- (GNEHM and SCHRÖTER), A., i, 212.
- 1-Phenylphthalazine** and 4-chloro- and 4-iodo- (LIECK), A., i, 50.
- Phenylphthalazone** and its salts (THIELE and FALK), A., i, 751.
- Phenylpiperidine**, *op*-diamino-, and its diacetyl derivative, *op*-dinitro-, 2-nitro-4-amino-, and 4-nitro-2-amino-, and its acetyl derivative, and their salts (SPIEGEL and UTERMANN), A., i, 882.
- Phenylpropionic acid**, preparation of (SUDBOROUGH and JAMES), T., 112.
- sodium salt, action of, on bacteria (KOZAI), A., ii, 380.
- Phenylpropiolyl chloride**, action of, on ketonic compounds (RUHEMANN), T., 682; P., 89.
- α -Phenylpropionic acid**, α -amino-, and its amide and nitrile and their hydrochlorides (JAWEOFF), A., i, 426.
- β -Phenylpropionic acid**, $\alpha\beta$ -dichloro-, and its esters, preparation of (SUDBOROUGH and JAMES), T., 106.
- β -hydroxylamino-, and its nitroso- and diacyl derivatives (POSNER), A., i, 955.
- Phenylpropylaniline**, 2:4-dinitro-, synthesis of (MULDER), A., i, 492.
- β -Phenylpropylene $\alpha\beta$ -glycol** and its anhydride (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBERN-SIBBERS, and RIEBEL), A., i, 582.
- Phenylisopropylhydantoins**, *d*- and *l*- (FISCHER, MATSUBARA, and HILPERT), A., i, 561.
- α -Phenylpropyl methyl ketone** and its semicarbazone (TIFFENEAU), A., i, 966.
- 1-Phenyl-5-pyrazolone**, 3-hydroxy-, and its imide and 4-amino-derivative (CONRAD and ZART), A., i, 608.
- Phenylpyridinium chloride**, dinitro-, action of, on benzidine and its sulphonic acids (REITZENSTEIN and ROTHSCHILD), A., i, 454.
- 1-Phenylpyridinium chloride**, *p*-chloro-3-hydroxy-, and its platinichloride (DIECKMANN, BECK, and SZELINSKI), A., i, 110.
- 3-hydroxy-, and its additive salts (ZINCKE and MÜHLHAUSEN), A., i, 33; (KÖNIG; DIECKMANN, BECK, and SZELINSKI), A., i, 109.
- 2-Phenylquinoline-3-carboxylic acid**, 4-hydroxy- ethyl ester (v. NIEMENTOWSKI), A., i, 39.
- Phenylquinoxaline-carboxylic acid** and hydroxy-, and its lactone (FISCHER and SCHINDLER), A., i, 609.
- Phenylrosindulines**, hydroxy- (KALLE & Co.), A., i, 314.
- Phenyl-selenious and -selenic acids** and their salts (STOECKER and KRAFFT), A., i, 568.

- Phenylserines**, isomeric (ERLENMEYER and BARKOW), A., i, 237.
- Phenylsuccinic acid**, preparation of (HIGSON and THORPE), T., 1471; P., 242.
- Phenylsuccinic anhydride**, note on (DEHN and THORPE), T., 1882; P., 283.
- Phenylsulphide-6'-carboxylic acid**, 2':4'-dinitro-2-hydroxy- (MAUTHNER), A., i, 448.
- 1-Phenyltetrahydropthalazine** and its additive salts and dibenzoyl derivative (LIECK), A., i, 51.
- Phenylthioacetic acid** (JOHNSON, BATEMAN, PALMER, and BRAUTLECHT), A., i, 954.
- 1-Phenylthioanthraquinone** (DECKER and WUERSCH), A., i, 689.
- 1-Phenyl-3- and -5-thiobenzyl-1:2:4-triazoles**, 5- and 3-amino-, and their acetyl derivatives (FROMM and SCHNEIDER), A., i, 714.
- Phenylthiocarbamide**, action of nitrous acid on (HAAGER and DOHT), A., i, 577.
- 1-Phenylthiocarbamido-2:5-dimethyl-pyrrole-3:4-dicarboxylic acid**, ethyl ester (BÜLOW and SAUTERMEISTER), A., i, 314.
- 1-Phenylthiocarbamido-2-phenyl-23-naphthaglyoxaline** (FRANZEN), A., i, 706.
- 5-Phenyl-1:2:3-thiodiazole**, 4-benzoyl derivative (WIELAND and BLOCH), A., i, 466.
- Phenylthiolacetic acid**, platinous salt (RAMBERG), A., i, 792.
- Phenylthioncarbamic acid**, phenyl ester (RIVIER), A., i, 948.
- Phenyl-p-tolyl-3:5-endoaniloo-4:5-dihydro-1:2:4-triazoles**, 1:4- and 4:1- (BUSCH and MEHRTENS), A., i, 118.
- Phenyl-p-tolymethylpyrazoline** (GATTERMANN), A., i, 590.
- 1-Phenyl-4-p-tolyl-3:5-endotoluidino-4:5-dihydro-1:2:4-triazole** (BUSCH and MEHRTENS), A., i, 118.
- 1-Phenyl-1:2:4-triazole**, 3:5-dithiol, and its acetyl derivative and dibenzoyl ether (FROMM and SCHNEIDER), A., i, 714.
- 1-Phenyl-4(2':4':5')-trimethoxybenzylidene-3-methyl-5-pyrazolone** (FABINYI and SZÉKI), A., i, 423.
- Phenyltrimethylammonium bromide** (FRIES), A., i, 649.
- Phenyltrimethylene** (BLAISE and COURTOT), A., i, 794.
- Phenylurethylecoumaran** (STOERMER and KÖNIG), A., i, 200.
- a-Phenylisovaleraldehyde** (TIFFENEAU), A., i, 966.
- γ-Phenylvaleric acid**, β-imino-α-cyano-ethyl ester, formation and constitution of (ATKINSON and THORPE), T., 1922; P., 282.
- 2-Phenyl-4-veratrylphtalazone** (ŁAGODZINSKI), A., i, 82.
- Phlothionic hydrogen** (DE REY-PAILLADE), A., i, 999.
- Phloretic acid**. See *p*-Hydrocoumaric acid.
- Phloridzin diuresis**. See Diuresis.
- Phloroglucinol**, the dynamic isomerism of (HEDLEY), T., 730; P., 106. action of diazomethane on (NIERENSTEIN), A., i, 497.
- Phloroquinol** and its derivatives (v. NIEMENTOWSKI), A., i, 210.
- Phorone**, action of magnesium benzyl chloride on (v. FELLENBERG), A., i, 567.
- Phosphate favas** from the diamantiferous sands of Brazil (HUSSAK), A., ii, 767.
- Phosphates**. See under Phosphorus.
- Phosphines**, organic. See under Phosphorus organic compounds.
- Phosphonium chloride**, formation of (BRINER), A., ii, 529.
- Phosphor-amide and -imide** (HUGOT), A., ii, 83.
- Phosphorescence phenomena** (DE BIERNE), A., ii, 257.
- Phosphoric acid**. See under Phosphorus.
- Phosphorus**, Bologna. See Sulphides, phosphorescent.
- red (SIEMENS), A., ii, 847.
- action of hydrogen peroxide on (WEYL), A., ii, 350.
- amount of, in egg-albumin (KAAS), A., i, 776.
- of human milk (SIKES), A., ii, 874.
- organic and inorganic, metabolism of (LE CLERC and COOK), A., ii, 870.
- poisoning. See under Poisoning.
- Phosphorus alloys with copper** (HEYN and BAUER), A., ii, 855.
- Phosphorus compounds** in faeces fat (LONG), A., ii, 637; (LONG and JOHNSON), A., ii, 875.
- with nitrogen, volatility in (HENRY), A., i, 549.
- physiological effects of, on milch cows (JORDAN, HART, and PATTEN), A., ii, 472.
- Phosphorus tribromide** and *triiodide*, action of gaseous ammonia on (HUGOT), A., ii, 83.
- pentachloride*, action of, on *β*-naphthol (BERGER), A., i, 81.
- chloronitrile (BESSION and ROSSET), A., ii, 534.

Phosphorus fluorides, melting and boiling points of (MOISSAN), A., ii, 535.
 diiodide, preparation of (DOUGHTY), A., ii, 21.
 sulphides (GIRAN), A., ii, 226; (BOULOUCH), A., ii, 438, 535.
 trisulphide, non-existence of (BOULOUCH), A., ii, 535.
 pentasulphide, action of ammonia on (STOCK, HOFFMANN, MÜLLER, v. SCHÖNTHAN, and KÜCHLER), A., ii, 535.
Phosphoric acid, quantitative vaporisation of, from its salts (JANNASCH and HEIMANN), A., ii, 745.
 influence of, on metabolism (DESGREZ and GUENDE), A., ii, 560.
 as manure. See under Manure.
 action of, on plants. See Plants.
 in soil. See under Soil.
 pentabasic, $P(OH)_5$, derivatives of (LEMOULT), A., i, 80.
 esters, molecular conductivity of (CARRE), A., ii, 4.
 titration of (SCHUCHT), A., ii, 899.
 estimation of, as magnesium ammonium phosphate, in manures (JØRGENSEN), A., ii, 579.
 estimation of, as magnesium pyrophosphate (SCHMITZ), A., ii, 705.
 separation of silicic acid when estimating citrate-soluble (HASENBÄUMER), A., ii, 579.
 citrate-soluble and total, estimation of, in basic slag (MACH), A., ii, 50; (SCHEINKE), A., ii, 392.
 estimation of, in manures as phosphomolybdic anhydride (BERJU), A., ii, 250.
 sources of error in the "citrate process" for the estimation of, in mineral phosphates (PELLET), A., ii, 801.
 estimation of, in soil by means of weak acid solvents (HALL and AMOS), T., 205; P., 11.
 estimation of, in hydrochloric acid soil extracts (NEUBAUER), A., ii, 52.
Phosphates, relative value of different (PRIANISCHNIKOFF), A., ii, 796.
 mineral, two new, from Russia (POPOFF), A., ii, 236.
Superphosphates, use of compressed air in the analysis of (SCHLIEBS), A., ii, 579.
 estimation of water-soluble phosphoric acid and total phosphoric acid in (ROHM), A., ii, 490.

Phosphorous:—
Hypophosphoric acid (PARRAVANO and MARINI), A., ii, 744, 848.
 molecular weight of (ROSENHEIM, STADLER, and JACOBSON), A., ii, 744.
Pyrophosphoric acid, esters (CAVALIER), A., i, 394.
Thiophosphoric acids and their salts (STOCK, HOFFMANN, MÜLLER, v. SCHÖNTHAN, and KÜCHLER), A., ii, 535.
Phosphorus organic compounds (LEMOUT), A., i, 80.
 in urine (SYMMERS), A., ii, 186.
 in wine (FUNARO and RASTELLI), A., ii, 886.
 estimation of, in flour and pastry (ARRAGON), A., ii, 592.
Phosphine oxides, tertiary, preparation of, and their compounds with acids and salts (PICKARD and KENYON), T., 262; P., 42.
Phosphines, preparation of, by Grignard's reaction (HIBBERT), A., i, 153.
Phosphorus, qualitative test for (MAURICHEAU-BEAUPRÉ), A., ii, 578.
 detection of small amounts of yellow (SCHENCK and SCHARFF), A., ii, 392.
 detection of yellow, in phosphorus preparations (SIEMENS), A., ii, 306.
 detection of yellow, in presence of large quantities of phosphorus sesquisulphide (ARONSTEIN), A., ii, 705, 899.
Phosphotungstates of amino-acids (BARKER), A., i, 633.
Photoazure (MICHAELIS), A., i, 445.
PHOTOCHEMISTRY :—
 Light, chemical action of (CIAMICIAN and SILBER), A., i, 10; (SACHS and HILPERT), A., i, 241; (CIUSA), A., i, 775.
 ultra-violet, chemical action of (Ross), A., ii, 512.
 chemical and electrical changes induced by (RAMSAY and SPENCER), A., ii, 715; (LE BON), A., ii, 825.
 action of, on benzaldehydophenylhydrazone (CHATTAWAY), T., 462; P., 36.
 influence of, on diazo-reactions (ORTON, COATES, and BURDETT), P., 308.
Photochemical action of substances of the fluorescein series, relation between the, and their intensity of fluorescence and sensitiveness to light (v. TAPPEINER), A., ii, 512.

PHOTOCHEMISTRY :—

Photochemical reactions, kinetics of (GOLDBERG), A., ii, 513, 514; (LUTHER and GOLDBERG), A., ii, 641.

Photoelectric effect and fall of potential at an alkali electrode in argon, helium, and hydrogen (DEMBER), A., ii, 516.

Photographic development, alkaline, theory of, with notes on the affinities of certain reducing agents (SHEPPARD), T., 530; P., 64.

the rendering insoluble of gelatin during (A. and L. LUMIÈRE and SEYEWETZ), A., i, 614, 915.

action of alums and aluminium salts on gelatin (A. and L. LUMIÈRE and SEYEWETZ), A., i, 916.

See also Gelatin.

Photographic films, silver bromide, solarisation in (WEISZ), A., ii, 137.

Optical activity, theory of (WINTHER), A., ii, 320, 822; (PATTERSON), A., ii, 715.

relation of, to position isomerism (COHEN and ZORTMAN), T., 47; (COHEN and ARMES), T., 454, 1479; P., 74, 241.

Optical effects of adjacent double linking (BRÜHL), P., 319.

Optical investigations on certain magnetic colloids (SCARPA), A., ii, 829.

Optical superposition, studies in (PATTERSON and KAYE), T., 1884; P., 274.

principle of (ROSANOFF), A., ii, 320.

Optically active substances, rotatory power of (WALDEN), A., ii, 257.

influence of temperature and concentration on the specific rotation of (GROSSMANN and WIENEKE), A., ii, 209; (GROSSMANN and PÖTTER), A., ii, 211.

which do not contain an asymmetric atom (PERKIN and POPE), P., 107; (MARCKWALD and METH), A., i, 360, 584.

Radiation, secondary, from compounds (MCLELLAND and HACKETT), A., ii, 413.

experiment to show the fluorescent action of, caused by radium (SIEGL), A., ii, 260.

Radiation intensity of positive ions, relation between translation and (STARK), A., ii, 514.

PHOTOCHEMISTRY :—

α -Rays, ionisation produced by (BRONSON), A., ii, 413.

from radium and from substances rendered active by radium emanation, properties of (BECQUEREL), A., ii, 212.

Rays, α -, β -, γ -, and X-, recombination of ions from (KLEEMAN), A., ii, 720.

α - and γ -, character of (WIGGER), A., ii, 139.

n -Rays (MASCART), A., ii, 141.

photographic experiments on the action of, on an oscillating spark (GUTTON), A., ii, 142.

Becquerel rays, action of, on water (KOHLRAUSCH), A., ii, 717.

Canal rays, observations on (RAU), A., ii, 642.

spectrum of the light of, in hydrogen and nitrogen (STARK and HERMANN), A., ii, 414.

the Doppler effect in (STARK), A., ii, 321.

Moser rays (PILTSCHIKOW), A., ii, 414.

Röntgen rays, secondary (BUMSTEAD), A., ii, 141; (BARKLA), A., ii, 413.

heating effects produced by, in different metals and their relation to the question of change in the atom (BUMSTEAD), A., ii, 141.

transformation of, into secondary rays, specific action of metals in the (HURMUZESCU), A., ii, 259.

influence of, on nitrogenous metabolism and on the blood in myelogenous leucemia (WILLIAMS), A., ii, 378.

Radioactive matter, influence of, on the absorption of nitrogen by organic substances (BERTHELLOT), A., ii, 645.

Radioactive substances, ionisation ranges of α -rays of (HAHN), A., ii, 718.

absorption of the γ -rays of (EVE), A., ii, 259.

temperature gradients of the earth due to (KÖNIGSBERGER), A., ii, 515.

See also Actinium, Lead, Polonium, β -Polonium, Radioactinium, Radiotellurium, Radiothorium, Thorium, and Uranium.

Radioactivity, definition of (SCHAUM), A., ii, 411.

of products of Etna (CASTORINA), A., ii, 64.

supposed, of hydrogen peroxide (O. and A. DONY), A., ii, 644.

PHOTOCHEMISTRY :—

- Radioactivity** of metals and their salts (CAMPBELL), A., ii, 411.
 of Norwegian and Swedish minerals, A. E. Nordenskiöld's investigations on the (SJÖGREN), A., ii, 64.
 of the soil and mineral waters of Slănic, Roumania (SEVERIN and HURMUZESCU), A., ii, 593.
 of springs. See under Water.
 relation between the, and composition of uranium compounds (McCoy), A., ii, 142.
 of uranyl double salts (MARCKWALD), A., ii, 143.
 of ashes and lava from the recent eruption of Vesuvius (BECKER), A., ii, 515.
- Rotation**, increase and reversal of (GROSSMANN and PÖTTER), A., i, 799.
 of optically active substances (WALDEN), A., ii, 257.
 of *N*-alkyl derivatives of malamide in glacial acetic acid, methyl alcohol and pyridine solutions (FRANKLAND and DONE), T., 1862; P., 286.
 of alkylated sugars and glucosides in alkyl haloid solutions (IRVINE and MOODIE), T., 1578; P., 204.
 of methyl esters of *l*-tartaric and diacetyl-*l*-tartaric acids (PATTERSON and KAYE), T., 1884; P., 274.
 of *N*-alkyl derivatives of tartramide in pyridine, methyl alcohol, and aqueous solutions (FRANKLAND and TWISS), T., 1852; P., 285.
- Specific rotation** of optically active substances, influence of temperature and concentration on the (GROSSMANN and WIENEKE), A., ii, 209; (GROSSMANN and PÖTTER), A., ii, 211.
- Rotatory power** and molecular weight in solution, supposed relationship between (PATTERSON), A., ii, 61; (WALDEN), A., ii, 209.
- specific, of organic acids, bases, and carbohydrates in pyridine and other solvents (HOLTZ), A., ii, 61.
 of coloured substances (GROSSMANN), A., ii, 823.
 of optically active nitrogen compounds, effect of constitution on (THOMAS and JONES), T., 280; P., 10.
 of sugars, higher alcohols, and hydroxy-acids, action of alkaline copper solutions on the (GROSSMANN), A., ii, 823.

PHOTOCHEMISTRY :—

- Rotatory power** of sugars and other optically active hydroxyl compounds, action of alkaline uranyl salts on (GROSSMANN), A., ii, 61.
Mutarotation of sugars (TANRET), A., ii, 137.
- Magnetic rotation**, an improved apparatus for measuring (PERKIN), T., 608; P., 100.
- Refractive index**, periodic relation between atomic weights and (BISHOP), A., ii, 137.
 of crystallising solutions (MIERS and ISAAC), T., 413; P., 9.
 of substances dissolved in non-aqueous solvents (CHÉNEVEAU), A., ii, 509.
- Refractive properties** of glucosides and proteids, change of, produced by acids, bacteria, and ferments (ÖBERMAYER and PICK), A., ii, 100.
- Molecular refraction** of acetylenic compounds (MOUREU), A., ii, 1.
- Refractometric analysis**. See under Analysis.
- Dispersion** of acetylenic compounds (MOUREU), A., ii, 1.
- Spectrum**, absorption, of a crystal in a magnetic field, correlation between the variations of the, and the magnetic rotatory polarisation (BECQUEREL), A., ii, 421.
 of a crystal of xenotime, variations of, in a magnetic field (BECQUEREL), A., ii, 317, 421.
 of a new gas contained in the atmosphere (SCHMIDT), A., ii, 821.
- Spectra**, absorption, relation between chemical constitution and (STEWART and BALY), T., 489, 618; P., 33, 85; (BALY and STEWART), T., 502; P., 34; (BALY, EDWARDS, and STEWART), T., 514; P., 35; (BALY, MARSDEN, and STEWART), T., 966; P., 126; (BALY and TUCK), T., 982; P., 142.
 absorption and emission lines of gaseous substances (LORENTZ), A., ii, 209.
 band (STARK), A., ii, 641.
 phosphorescence, indicating the existence of new elements (CROOKES), A., ii, 62.
 violet and ultra-violet absorption spectra of complex copper compounds (BYK), A., ii, 317.
 of the rare earths (CROOKES), A., ii, 360, 713; (MARC), A., ii, 360; (LANGLET), A., ii, 713.

PHOTOCHEMISTRY:

Spectra of the elements and compounds, wave-length tables of the (BRITISH ASSOCIATION REPORT), A., ii, 821.

of positive ions (STARK), A., ii, 321. obtained at the total solar eclipses of 1900, 1901, and 1905, determinations of wave-length from (DYSON), A., ii, 713.

Spectroscopic standards, measurement of the wave-lengths of the iron spectrum for the establishment of a system of (FABRY and BUISSON), A., ii, 641.

Spectroscopy, new burner for (RIESENFIELD and WOHLERS), A., ii, 593, 804.

Spectrum analysis (FREDENHAGEN), A., ii, 409.

Photographic development and films. See under Photochemistry.

Photosynthesis by growing plants, review of some of the problems of (MELDOLA), T., 749.

Phrenosin and cerebron (THIERFELDER), A., ii, 183.

Thudichum's, identity of, with Thierfelder's cerebron (GIES), A., i, 871.

o-Phthalaldehyde, condensation products of (THIELE and FALK), A., i, 750.

Phthalaldehydes, *o*-, *m*-, and *p*-, preparation of (THIELE, GÜNTHER, and LEOPOLD), A., i, 750.

Phthalamic acid, acetyl and benzoyl derivatives of (TITHERLEY and HICKS), T., 708; P., 106.

Phthalanil, 4-amino- (BOGERT and RENSHAW), A., i, 510.

Phthalazines (LIECK), A., i, 50.

Phthaleins, structure of (SILBERRAD), T., 1793; P., 252.

mineral acid salts of (HELLER and LANGKOPF), A., i, 671.

Phthalic acid, influence of the colouring matter of the mother liquor on the crystallisation of (GAUBERT), A., ii, 152, 343.

Phthalic acid, 4-amino-, methyl ester, and its acyl derivatives (BOGERT and RENSHAW), A., i, 510.

3-hydroxy-, and its derivatives (ROBINSON), P., 323.

4-hydroxy-, and its derivatives (BENTLEY and WEIZMANN), P., 323.

p-*dihydroxy*-, and its anhydride and imide and their diacetyl derivatives (THIELE and GÜNTHER), A., i, 744.

*iso***Phthalic acid**, 2-amino-, and its salts, acetyl, and azo-derivatives, and 2-nitro-, and its salts and methyl ester (NOELTING and GACHOT), A., i, 181.

Phthalic anhydride, condensation of, with dimethylhomocatechol (PERKIN and WEIZMANN), T., 1660. condensation of, with epichlorohydrin in presence of tertiary bases (WEINSCHENK), A., i, 90.

Phthalidecarboxyltropeine and its additive salts (JOWETT and HANN), T., 363; P., 61.

Phthalides, Gabriel's conversion of, into indanediones (EIBNER), A., i, 588.

Phthalimide, acidic constants of (Wood), T., 1836.

acetyl and benzoyl derivatives of (TITHERLEY and HICKS), T., 708; P., 106.

Phthalimide, bromo- and chloro-, preparation of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 182. *dibromo-p-dihydroxy*-, *dichloro-p-di-* hydroxy-, and *p-dihydroxy*- (THIELE and GÜNTHER), A., ii, 744.

Phthalimideoxime (THIELE and FALK), A., i, 752.

Phthalonic acid, condensation of, with *o*-diamines (MANUELLI and MASELLI), A., i, 308.

Phthalyl chloride, condensation of, with pyrogallol and with veratrole (PERKIN and WEIZMANN), T., 1657.

Phthalylacetyleacetone, transformations of, and its oxime, and **Phthalylacetone** (BÜLOW and DESENIS), A., i, 588, 966.

Phthalyl-semicarbazide and *p-nitrophenylhydrazide* (BÜLOW and DESENIS), A., i, 588.

Physiological action and chemical constitution (MARSHALL), A., ii, 788. relation between, in the tropeines (JOWETT and PYMAN), P., 317.

of aminoalkyl esters (RIEDEL), A., i, 843.

of bases from ox muscle (KUTSCHER and LOHMANN), A., ii, 877.

Phytin, acid of, physiological action of (MENDEL and UNDERHILL), A., ii, 789.

Phytosterol (m.p. 136–137°) from *Eriodictyon californicum* (POWER and TUTIN), A., ii, 885.

Phytosterol, fatty esters of (JAEGER), A., i, 742.

Phytosterols, new colour reaction of the (OTTOLENGHI), A., ii, 311.

α-Picoline, action of formaldehyde on (LIPP and ZIRNGIBL), A., i, 381.

Picramic acid, interaction of, with potassium cyanide (BORSCHE and HEYDE), A., i, 15.

- Pieric acid**, existence of, in two different forms (v. GEORGIEVICS), A., i, 420; (SOMMERHOFF), A., i, 658.
 colour and constitution of (v. GEORGIEVICS), A., i, 420.
 behaviour of homologous cyclic compounds towards (HOFMANN and ARNOLDI), A., i, 154.
 mercury compounds of (HANTZSCH and AULD), A., i, 471.
 estimation of (FEDER), A., ii, 809.
- Pieric acid**, cyano-, and its aniline salt (BORSCHE and GAHRITZ), A., i, 957.
- Picyrlyl chloride**, reaction of, with phenylhydrazones of aliphatic aldehydes and ketones (CIUSA and AGOSTINELLI), A., i, 892.
- Pigeons**, feeding experiments on (JACOB), A., ii, 561.
 eggs of. See Eggs.
 micro-organism from the excrement of (ULPIANI and CINGOLANI), A., ii, 189.
- Pigment**, brown, of Phaeophyceae and Diatoms (MOLISCH), A., ii, 118.
- Pigments** of diatom-chromatophores (KOHL), A., ii, 571.
 green, of ripe seeds, spectroscopic study of (LUBIMENKO), A., ii, 624.
- Pigs**, composition of the fat of, fed on oil meals (FARNSTEINER, LENDRICH, and BUTTENBERG), A., ii, 205.
 urine of. See under Urine.
- d*-**Pimamic acid** (VESTERBERG), A., i, 92.
- Pinacolin**, $C_{30}H_{30}ON_2$, and its hydrochloride, from tetramethyldiaminotetraphenylethylene glycol (WILLSTÄTTER and GOLDMANN), A., i, 981.
- Pinacolin** and its derivatives, constitution of (DELACRE), A., i, 476.
 some synthetical reactions of (HENRY), A., i, 618.
- Pinacolyl alcohol** and its acetate and bromide (DELACRE), A., i, 476.
tert.-**Pinacolyl alcohol** (DELACRE), A., i, 784.
- Pinacolyl alcohols**, *sec*.- and *tert*.-, and their separation (DELACRE), A., i, 921.
- Pinacone** from ethyl propyl ketone, action of dilute sulphuric acid on (GOLDBERGER and TANDLER), A., i, 58.
- $C_{18}H_{22}O_2$, from phenyl ethyl ketone (STERN), A., i, 271.
- $C_{22}H_{22}O_4$, from the reduction of cyclopentadienebenzoquinone (ALBRECHT), A., i, 676.
- $C_{30}H_{30}O_6$, from 2:5-dimethoxybenzophenone (KAUFFMANN and GROMBACH), A., i, 285.
- $C_{54}H_{86}O_2$ (or $C_{54}H_{90}O_2$), from the reduction of cholestenone (WINDAUS), A., i, 174.
- Pinacone** (*tetramethylethylene glycol*), preparation of (HOLLEMAN), A., i, 619.
- Pine**, Norway. See *Pinus resinosa*.
- Pine oil**, estimation of petroleum, petrol distillates, and benzene in (BÖHME), A., ii, 583.
- Pinene**, some derivatives of (LEACH), P., 137.
 aminodicarboxylic acid from, preparation of, and its hydrochloride, nitrate, acid oxalate, copper salt, ethyl ester and its hydrochloride, and acetyl derivative (TILDEN and BLYTHE), T., 1563; P., 255.
 chlorohydrochlorides (FRANKFORTER and FRARY), A., i, 970.
 hydrochloride (*bornyl chloride*) (HESSE), A., i, 375.
 nitroamine and its additive salts and acetyl, dibenzoyl, and diphenylcarbamide derivatives, and its reactions with aldehydes (LEACH), P., 304.
- d*-**Pinene** from the oil from the fruit of *Pittosporum undulatum* (POWER and TUTIN), T., 1086; P., 170.
- Pinene series**, researches in the (WALLACH, ENGELBRECHT, ISAAC, and JÄGER), A., i, 683.
- Pinocamphone** and its dibromide and oxidation (WALLACH and ENGELBRECHT), A., i, 684.
- Pinocamphylamine**. See Dihydropinylamine.
- Pinocarveol** and **Pinocarvone**, preparation and reactions of (WALLACH and JÄGER), A., i, 683.
- Pinus Abies**, resin acids from (KLAESON and KÖHLER), A., i, 100.
 terpenes from the resin of (ASCHAN), A., i, 442, 686.
- Pinus maritima**, oil from the buds of (BELLONI), A., i, 520, 525.
- Pinus Pinea**, direct action of light on the transformation of sugars absorbed by the young plants of (LUBIMENKO), A., ii, 882.
- Pinus resinosa**, oleo-resin and terpenes from (FRANKFORTER), A., i, 971.
- Pinus sylvestris**, *d*-pimamic acid from (VESTERBERG), A., i, 92.
 terpenes from the resin of (ASCHAN), A., i, 442, 686.
- Piperazine** benzoate and salicylate (ASTRUC), A., i, 309.
- Piperidine**, preparation of pure, and its acetyl derivative and additive salts (VORLÄNDER and WALLIS), A., i, 764.
 tertiary and quaternary bases from (GABRIEL and COLMAN), A., i, 881.
- Piperidine**, cyano- (McKEE), A., i, 782.

- Piperidinium cyanide** (PETERS), A., i, 817.
Piperidino- See **Piperidyl-**.
 β -Piperidyl- β -amyl-, - β -hexyl-, and - β -phenyl-acrylonitriles (MOUREU and LAZENNEC), A., i, 956.
Piperidylcerotonic acid, ethyl ester (FEIST), A., i, 332.
N-Piperidylmethyl-alkyl- and -aryl-amides (EINHORN, BISCHKOPFF, SZELINSKI, SCHUPP, and SPRÖNGERTS), A., i, 246.
Piperidylmethyldiethylcarbinol (SÜSS-KIND), A., i, 133.
 β -Piperidyl- β -phenylacrylic acid, ethyl ester (MOUREU and LAZENNEC), A., i, 957.
Piperidyl-*m*-phenyl-dicarbamide, -diurethane and -4-nitrophenyl-2-urethane (SPIEGEL and UTERMANN), A., i, 882.
 β -Piperidyl- β -phenyl- α -lactic acids, isomeric (ERLENMEYER and BARKOW), A., i, 237.
Piperonal (*piperonaldehyde*), electrolytic reduction of (LAW), T., 1514, 1526; P., 237.
action of hydrogen chloride on : a two-component three-phase system (MOORE), A., i, 855.
amino- and nitro-, constitution of (MAMELLI), A., i, 93.
Piperonaldehydetrinitrophenylhydrzone (CIUSA and AGOSTINELLI), A., i, 892.
Piperonylic acid, amino- and nitro-, constitution of (MAMELLI), A., i, 93.
Piperonylideneresacetophenone dimethyl ether (PERKIN and WEIZMANN), T., 1653.
 β -Piperonyl- α -methylglycidic acid, ethyl ester (DARZENS), A., i, 137.
Piperonyldinitromethane and its metallic derivatives (PONZIO), A., i, 736.
Piperonyloin, electrolytic oxidation of (LAW), T., 1447; P., 197.
electrolytic reduction of (LAW), T., 1519, 1526; P., 237.
Piper Volkenstii, oil of (SCHMIDT and WEILINGER), A., i, 299.
Pipette, new automatic (STEIN), A., ii, 797.
Pitch, mineral, from Ijebu District, Lagos, A., ii, 235.
Pipitzaholic acid, extraction, properties, and reactions of (SANDERS), P., 134.
Pittosporum undulatum, constituents of the essential oil from the fruit of (POWER and TUTIN), T., 1083; P., 170.
Pituitary feeding. See Feeding.
- Pivaloin** (BOUVEAULT and LOCQUIN), A., i, 783.
steric hindrance in derivatives of (BOUVEAULT and LOCQUIN), A., i, 784.
Placenta, chemistry of the (CRAMER and LOCKHEAD), A., ii, 781.
enzymes of the (CHARRIN and GOUFIL), A., ii, 294.
Placental blood. See under Blood.
Placodiolic acid (ZOPF), A., i, 672.
Plant sap of an oleaginous plant, variations in the nitrogen and phosphoric acid of the (ANDRÉ), A., ii, 385.
Plant tissues, estimation of betaine and choline in (STANĚK), A., ii, 700.
Plants, structure of, developed in presence of light, without carbon dioxide and with organic substances (MOLLIARD), A., ii, 117.
effect of sterilising soil on the development of (SCHULZE), A., ii, 796.
new nutritive solution for (VON DER CRONE), A., ii, 191.
action of alkalis on (EINECKE and PFEIFFER), A., ii, 480.
physiological action of copper-lime mixture on (EWERT), A., ii, 387.
action of manganese on (SALOMONE), A., ii, 792.
action of nitrates on (STUTZER), A., ii, 570.
assimilation by, during different periods of growth (WILFARTH, RÖMER, and WIMMER), A., ii, 44.
assimilation of potassium and sodium by (PFEIFFER, EINECKE, SCHNEIDER, and HIEPER), A., ii, 385.
a green organ of, devoid of assimilatory power (FRIEDEL), A., ii, 481.
injurious action of acetates and formates on (Asō), A., ii, 887.
importance of formaldehyde as a disinfectant for (KÖCK), A., ii, 887.
work of respiration enzymes of, under different conditions (PALLADIN), A., ii, 570.
formation of different respiration enzymes depending on the stage of development of (PALLADIN), A., ii, 481.
origin of alkaloids in (PICTET), A., ii, 884.
cyanogenesis in (HÉRISSEY), A., i, 31; ii, 882; (ROBERTSON and WYNNE), A., ii, 112; (GUIGNARD), A., ii, 118, 119, 301, 795; (KOHN-ABREST), A., ii, 625; (DUNSTAN, HENRY, and AULD), A., ii, 794, 795; (HÉBERT; JITSCHY), A., ii, 882.

- Plants**, composition of the liquids which circulate in (ANDRÉ), A., ii, 192.
 formation and physiological rôle of pentosans in (CALABRESI), A., ii, 883.
 flowering, oxidising power of the absorbent surfaces of the roots of (RACIBORSKI), A., ii, 45.
 frozen, chemical processes in (GORKE), A., ii, 793.
 garden, stimulating influence of sodium fluoride on (ASÖ), A., ii, 889.
 gramineous and leguminous, probable causes of the differences in the relations between the nutrition of (LEMMERMANN), A., ii, 480.
 green, development of, grown without carbon dioxide in artificial soil containing amides (LEFÈVRE), A., ii, 116.
 amide nutrition of, in absence of carbon dioxide (LEFÈVRE), A., ii, 116, 245, 791.
 changes in the nitrogenous constituents of, in absence of light (KIESSEL), A., ii, 882.
 mechanism of carbon assimilation in (USHER and PRIESTLEY), A., ii, 299, 881.
 higher, action of phosphoric acid on (VON DER CRONE), A., ii, 191.
 Belgian, cyanogenetic glucosides in some (JITSCHY), A., ii, 882.
 medicinal and useful, of Brazil (PECKOLT), A., ii, 484, 701, 794.
 detection of glucosides in, by means of emulsion (BOURQUELOT), A., ii, 386.
Plaster of Paris (MOYE), A., ii, 447; (DE FORCRAND), A., ii, 852.
Platinocyanides, some new (LEVY and SISSON), T., 125.
Platinum, influence of very strong electromagnetic fields on the spark spectra of (PURVIS), A., ii, 421.
 catalytic power and electromotive force of (BRINGHENTI), A., ii, 426.
 boiling of (MOISSAN), A., ii, 175.
 sublimation of, below its melting point (GUNTZ and BASSETT), A., ii, 93.
 diffusion of hydrogen through hot (WINKELMANN), A., ii, 336.
 attack of, by sulphuric acid (DELÉPINE), A., ii, 24, 93, 289; (QUENNESSON), A., ii, 551.
 compounds of, with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 485.
Platinum alloy with iridium, action of hot sulphuric acid on, in presence of ammonium sulphate (DELÉPINE), A., ii, 289.
 with silver (THOMPSON and MILLER), A., ii, 64.
Platinum bases, constitution of (JÖRGENSEN), A., i, 338; (JÖRGENSEN and SØRENSEN), A., ii, 289.
 a new red compound isomeric with Magnus' green salt (JÖRGENSEN and SØRENSEN), A., ii, 289.
Hydroxyloplatidiammine sulphate (TARUGI), A., ii, 618.
Platinous salts of organic acids containing sulphur (RAMBERG), A., i, 791.
Platinum and gold, detection of, in inorganic analysis (PETERSEN), A., ii, 583.
Platinum black, some catalytic actions of (LOEW and ASÖ), A., ii, 862.
Platinum gauze for contact action in organic ultimate analysis (HERAEUS), A., ii, 900.
Platinum metals, analysis of (ORLOFF), A., ii, 632.
Pleuronectes eggs. See under Eggs.
Plumbates. See under Lead.
Plumbogummite from the diamantiferous sands of Brazil (HUSSAK), A., ii, 768.
Pneumonia, acute, opsonic content of the serum in the course of (MACDONALD), A., ii, 296.
Poison, amounts of, necessary for killing a given weight of living substance (BOKORNY), A., ii, 383.
Poisoning by copper, can small amounts of copper induce chronic? (TOYNAGA), A., ii, 879.
 by hydrocyanic acid (DE DOMINICIS), A., ii, 879.
 by hydrogen phosphide by means of ferrosilicon (LEHNKERING), A., ii, 664.
 by lysol (BLUMENTHAL), A., ii, 879.
 by eating the seeds of *Phaseolus lunatus* (ROBERTSON and WYNNE), A., ii, 112.
 by phosphorus (ABDERHALDEN and SCHITTENHELM), A., ii, 878.
 the relation between the fat and carbohydrates of the body in (MOHR), A., ii, 474.
 by veronal, detection of (G. and H. FRERICHS), A., ii, 379.
Poisons, quantitative action of (BOKORNY), A., ii, 296, 297.
 reaction of cells and nerve-endings to (ANGLEY), A., ii, 111.
 action of, on adult and embryonic funduli (SOLLmann), A., ii, 475.

- Polarisation.** See under Electrochemistry and Photochemistry.
- Pollen,** action of alkaloids on (COUPIN), A., ii, 384.
- Polonium** and radiotellurium (MARCKWALD), A., ii, 721.
- time constant of (CURIE), A., ii, 323.
- diminution of the radioactivity of, with time (CURIE), A., ii, 143.
- radiations emitted by (EWERS), A., ii, 322.
- absorption of α -rays from (LEVIN), A., ii, 595.
- production of secondary rays by α -rays from (LOGEMAN), A., ii, 721.
- rays, relative absorption of the rays of radium and (RIECKE, RETSCHINSKY, and WIGGER), A., ii, 63.
- s-Polonium** (GIESEL), A., ii, 212, 260.
- Polyazo-compounds** (KALLE & Co.), A., i, 324.
- Polygala Senega**, oil from the root of (SCHROEDER), A., ii, 132.
- Polyglycine** esters, action of nitrous acid on (CURTIUS and DARAPSKY), A., i, 403 ; (CURTIUS and THOMPSON), A., i, 403, 404.
- Polymerisation** of liquids (BOGDAN), A., ii, 274.
- Polymethylene series**, velocity of chemical change in the (MENSCHUTKIN), T., 1532 ; P., 203.
- Polymolybdates.** See under Molybdenum.
- Polynitro-compounds**, aliphatic (MEISENHEIMER and SCHWARZ), A., i, 618.
- Polyorchis.** See Jelly-fish.
- Polypeptides**, amino-acids, and proteids (FISCHER), A., i, 324.
- synthesis of (FISCHER and SUZUKI), A., i, 73 ; (FISCHER), A., i, 145, 808.
- behaviour of different, towards pancreas and stomachic juices (FISCHER and ABDERHALDEN), A., ii, 99.
- See also Peptides.
- Polysaccharides** from lichens and marine algae, digestibility and utilisation of (SAIKI), A., ii, 870.
- Position isomerism**, relation of, to optical activity (COHEN and ZORTMAN), T., 47 ; (COHEN and ARMES), T., 454, 1479 ; P., 74, 241.
- Positive column**, method for determining the temperature and conductivity for heat of the (LILIENFELD), A., ii, 653.
- Potable water.** See under Water.
- Potash apparatus** (RUPP), A., ii, 802.
- Potash bulbs**, Liebig's, modification of (VILLIERS), A., ii, 633.
- new (ACREE), A., ii, 304.
- Potassammonium** (JOANNIS), A., ii, 161 ; (RUFF and GEISEL), A., ii, 228.
- Potassium**, atomic weight of (RICHARDS and STÄHLER), A., ii, 848.
- oxidation by burning (HOFMANN and HIENDLMAIER), A., ii, 747.
- relation of, to sodium in soil and solution cultures (BREAZEALE), A., ii, 891.
- Potassium salts**, isomorphism of, with sodium salts (KURNAKOFF and SCHEMTSCHUSCHNY), A., ii, 443.
- manurial value of (VOELCKER), A., ii, 888 ; (ASÖ ; NAMIKAWA), A., ii, 891.
- Potassium borates** (ATTERBERG), A., ii, 281 ; (DUKELSKI), A., ii, 610.
- bromide, chloide, and iodide, electrical conductivities of, in ethyl and methyl alcohols (STENQUIST), A., ii, 827.
- assay of officinal (CORMIMBOEUF), A., ii, 395.
- iodide, and persulphate, reaction between, and its application in medicine (MERK), A., ii, 436.
- bismuth bromide and chloride (ALOY and FRÉBAULT), A., ii, 550.
- chlorate, simple process for the continuous electrolytic preparation of (WALLACH), A., ii, 748.
- and nitrate, isomorphism of (HERBETTE), A., ii, 660.
- action of hydrochloric acid on (KOLE), A., ii, 15 ; (DITZ), A., ii, 155.
- chloride, compounds of, with lead chloride (LORENZ and RUCKSTUHL), A., ii, 853.
- chromate, equilibria between barium carbonate and sulphate (SCHOLTZ and ABEGG), A., ii, 602.
- and dichromate, behaviour of sulphur towards (BRÜCKNER), A., ii, 364.
- iodide, conductivity and viscosity of solutions of, in mixtures of acetone with methyl alcohol, ethyl alcohol, and water (JONES and BINGHAM), A., ii, 66.
- polyiodide** (ABEGG and HAMBURGER), A., ii, 748.
- permanganate**, mechanism of the reduction of, and kinetics of the reaction between, and formic acid (SKRABAL and PREISS), A., ii, 658.
- solubility of (BAXTER, BOYLSTON, and HUBBARD), A., ii, 856.
- action of formaldehyde solution on (FRANKFORTER and WEST), A., i, 929.
- action of hydrazine sulphate on (MEDRI), A., ii, 628.
- action of hydrochloric acid on, in presence of inorganic salts (BROWN), A., ii, 31.

- Potassium**, permanganate, germicidal action of (GARNER and KING), A., ii, 245.
 nickelo-nickelite (HOFMANN and HIENDLMAIER), A., ii, 747.
 nitrate, electrolysis of (COUCHET, SCHLOSSER, and DUPARC), A., ii, 749.
 assay of (BENSEMANN), A., ii, 307.
 estimation of, gravimetrically, in meat (PAAL and MEIRTEENS), A., ii, 898.
 estimation of nitrogen in (VAN DAM), A., ii, 898.
 cobaltinitrite (*Fischer's salt*) and its decomposition by heat (RAY and GAÑGULI), T., 551; P., 40.
 aluminium phosphate, hydrated. See Palmerite.
 sulphate, double salt of, with antimony sulphate (METZL), A., ii, 174.
 and sodium sulphate, mutual relationship of (VAN'T HOFF and BARSCHALL), A., ii, 666.
 iridium sulphate (DELÉPINE), A., ii, 551.
 persulphate, interaction of, with hydrogen peroxide (FRIEND), T., 1092; P., 161.
 behaviour of, with certain salt solutions (PAJETTA), A., ii, 850.
Potassium organic compounds, insoluble, in wood charcoal (BERTHELOT), A., ii, 117.
Potassium cyanide, action of, on pulegone (CLARKE and LAPWORTH), T., 1869; P., 285.
 action of, on sodium di- and tetra-thionites (GUTMANN), A., i, 149.
 ethylxanthate, reaction between, and acid chlorides (WILLCOX), A., i, 726.
 ferricyanide, reduction of (VENDITORI), A., i, 486.
 ferrocyanide, action of light on (FOSTER), T., 912; P., 136.
 detection and precipitation of the ferrous iron in aqueous solutions of (HABER), A., i, 149.
 mercuric ferrocyanide (FERNEKES), A., i, 149.
 thiocyanate, action of certain gases on, at high temperatures (MILBAUER), A., i, 405.
 action of, on imide chlorides (JOHNSON and MCCOLLUM), A., i, 768.
Potassium, estimation of (REGEL), A., ii, 631.
 estimation of, by Tarugi's method (PAJETTA), A., ii, 804.
 estimation of, in hydrochloric acid soil extracts (NEUBAUER), A., ii, 52.
Potassium, estimation of, in potassium salts and mixed manures (KLING and ENGELS), A., ii, 580.
Potatoes, amount of solanine in (WINTGEN), A., ii, 701.
Potentials. See under Electrochemistry.
Pozzuolana and its technical value (GIORGIS and GALLO), A., ii, 447.
 volcanic, determination of the hydraulic value of (MANZELLA), A., ii, 493.
Praseodymium, arc spectra of (BERTRAM), A., ii, 410.
Praseodymium salts, absorption spectra of solutions of (LANGLET), A., ii, 713.
Praseodymium chloride (MATIGNON), A., ii, 675.
 absorption spectra of (RECH), A., ii, 410.
 and lanthanum and neodymium chlorides, physiological action of (DRYFUSS and WOLF), A., ii, 473.
Precipitates, application of the pyknometric method for the determination of the weight and volume of, suspended in liquids (GILLOT and GROSJEAN), A., ii, 488.
 filter tubes for collection of (PENFIELD and BRADLEY), A., ii, 488.
Precipitin anti-sera and their standardisation (WELSH and CHAPMAN), A., ii, 688.
Precipitin reaction, nature of (HAMBURGER and ARRHENIUS), A., ii, 559.
Precipitins produced by chemically-allied proteids (OBERMAYER and PICK), A., ii, 559.
 action of (OBERMAYER and PICK), A., ii, 98.
 of snake antivenoms and antisera (HUNTER), A., ii, 113.
Precipitations, amorphous (STRÖM-HOLM), A., ii, 343, 344.
Preservatives, harmfulness of sulphurous acid and sulphites as (JACOBI and WALBAUM), A., ii, 465; (WALBAUM), A., ii, 567.
Preserved food, bacteria of "blown" tins of (CATHCART), A., ii, 699.
 meat. See under Meat.
Pressure regulator (VILLIERS), A., ii, 277.
Privet, detection and estimation of syringin in the various organs of (VINTILESCO), A., ii, 701.
Pro-invertase and reversibility of the invertase in *Mucor* (PANTANELLI), A., ii, 623.
Propaldehydephenylhydrazone, reactions of, with picryl chloride (CIUSA and AGOSTINELLI), A., i, 892.

- Propane**, β -chloro- β -nitro- and β -chloro- β -nitroso- (PONZIO), A., i, 482.
tribromo-, action of, on the sodium derivative of ethyl malonate (PERKIN and SIMONSEN), P., 133.
- cycloPropane-1-carboxylic acid**, 1-cyano-, ethyl ester, and its hydrolysis (BARTHE), A., i, 175.
- Propanedicarboxylic acids**. See Dimethylmalonic acid, Glutaric acid, and Methylsuccinic acid.
- cycloPropane-1:1-dicarboxylic acid**, ethyl ester (BARTHE), A., i, 175.
- Propanepentacarboxylic acid**. See Dimcarboxytricarballylic acid.
- Propenyl alcohol**, action of hydrogen chloride on (MICHAEL), A., i, 781.
- p-isoPropenyltetra(bromophenol)**, α -mono- and α -di-bromo-, and their acetyl derivatives (ZINCKE and GRÜTERS), A., i, 173.
- isoPropenylphenol**, bromo-derivatives and their acetyl compounds (ZINCKE), A., i, 737.
- isoPropenyltrimethylcyclopentene**. See Trimethylisopropenylcyclopentene.
- Propioin** and its acetyl derivative and semicarbazone (BOUVEAULT and LOCQUIN), A., i, 782.
- Propionamide**, α - and β -amino- (FRANCHIMONT and FRIEDMANN), A., i, 71.
- Propione**. See Diethyl ketone.
- Propionic acid**, amino-. See Alanines. diamino-, resolution of (FISCHER and JACOBS), A., i, 807.
 dipeptide of, and its salts (FISCHER and SUZUKI), A., i, 73.
 $\alpha\beta$ -diamino-, optically active (NEUBERG and ASCHER), A., i, 937.
 α -bromo-, active components of (RAMBERG), A., i, 923.
 ethyl ester, action of zinc on a mixture of, with cinnamaldehyde and with salicylaldehyde (BAIDAKOWSKY), A., i, 178.
 α -chloro-, ethyl ester, condensation of, with aldehydes (DARZENS), A., i, 137.
 condensation of, with ketones (DARZENS), A., i, 62.
 α -hydroxy-. See Lactic acid.
- $\beta\beta$ -dinitro-, methyl ester, and its potassium derivative (MEISENHEIMER and SCHWARZ), A., i, 618.
- Propionitrile**, orthobaric densities of, to the critical point (TER-GAZARIAN), A., ii, 423.
- dinitro-, and its salts (MEISENHEIMER and SCHWARZ), A., i, 618.
- l-Propionyl-d-alanine**, bromo- (FISCHER and RASKE), A., i, 457.
- l-Propionylglycylglycine**, bromo- (FISCHER), A., i, 810.
- Propionylisatin** (MEYER), A., i, 108.
- Propionylpropionic acid**, ethyl ester, derivatives of (EMMERLING and KRISTELLER), A., i, 623.
- Propionylpyruvic acid** and its ethyl ester (DIELS, SIELISCH, and MÜLLER), A., i, 438.
- Propiophenone** (*phenyl ethyl ketone*), pinacone from (STERN), A., i, 271.
 amino- and nitro-derivatives (COMANDUCCI and PESCATELLI), A., i, 965.
- Propoxide**, sodium, action of, on camphor at a high temperature (HALLER and MINGUIN), A., i, 594.
- β -Propoxy- β -phenylacrylonitrile**, synthesis of (MOUREU and LAZENNEC), A., i, 241.
- isoPropyl alcohol**, α -chloro- (MICHAEL), A., i, 781.
- isoPropylaniline**, 2:4-di- and 2:4:6-trinitro- (MULDER), A., i, 492.
- n-Propylarsonic acid** and its magnesium salt and **n-Propylarsine disulphide** (DEHN and MCGRATH), A., i, 341.
- p-isoPropylbenzylidenerodanic acid** (BARGELLINI), A., i, 536.
- Propyl-camphol** and its acetate and -camphor (HALLER and MINGUIN), A., i, 594.
- Propylene**, $\alpha\alpha$ -dichloro-, action of sodium on (SMEDLEY), P., 158.
- Propylene oxide**, action of hydrogen chloride on (MICHAEL), A., i, 781.
- $\alpha\beta$ -Propylene phthalate**, γ -chloro- (WEINSCHENK), A., i, 91.
- Propylenediamine**, compounds of, with chromium salts (PFEIFFER, BASCI, GASSMANN, HAIMANN, and TRIESCHMANN), A., ii, 616.
 compounds with palladium (GUTBIER and WÖRNLE), A., i, 805.
- Propylenedicarboxylic acid**. See Glutamic acid.
- Propylenepentacarboxylic acid**. See Dicarboxyaconic acid.
- Propylenetetracarboxylic acid**. See Dicarboxyglutaconic acid.
- Propylene- $\alpha\beta\gamma$ -tricarboxylic acid**. See Aconitic acid.
- α -Propyl- β -ethylacrylic acid**. See β -Ethyl- α -propylacrylic acid.
- isoPropylformal**, *s-tetrachloro*-, crystals of (KAISIN), A., i, 5.
- 1-isoPropyl-6-cyclohexanone** (BOUVEAULT and CHEREAU), A., i, 513.
- 1-Propylhydrocortarnines**, *n*- and *iso*-, and their additive salts (FREUND and REITZ), A., i, 601.
- isoPropylideneacetone**. See Mesityl oxide.

- iso***Propylenetetrabromoquinone**, *p*-di-bromo- (ZINCKE and GRÜTERS), A., i, 172.
- Propylenecamphor** and its nitrosate (HALLER and MINGUIN), A., i, 595.
- iso***Propylenequinone**, bromo-derivatives (ZINCKE), A., i, 737.
- Propylmeconines**, *n*- and *iso*- (MERMOD and SIMONIS), A., i, 303.
- p*-*iso***Propylphenol**, ψ -bromides and quinones of (ZINCKE and GRÜTERS), A., i, 172.
- bromo-derivatives and their acetyl compounds (ZINCKE), A., i, 737.
- Propylpiperidine**, γ -chloro-, and the formation of an octacyclic polymeride from (HÖRLEIN and KNEISEL), A., i, 458.
- 1-Propylpiperidine**, γ -chloro-, and its quaternary salt, and γ -iodo-, and its salts (GABRIEL and COLMAN), A., i, 881.
- iso***Propyl-4-stilbazole** and its dihydro-derivative and their salts (FREUND), A., i, 883.
- Propyltheophyllines**, *n*- and *iso*- (SCHMIDT and SCHWABE), A., i, 450.
- iso***Propyltrimethylcyclopentane**. See Trimethylisopropylcyclopentane.
- Propyl vinyl ketone** (BLAISE and MAIRE), A., i, 142.
- Prostate gland**. See Gland.
- Protagon** (POSNER and GIES), A., i, 54.
- Proteid**, non-coagulable in blood (HOWELL), A., ii, 868.
- compounds, ion (ROBERTSON), A., ii, 179, 376, 567.
- contents of crops, influence of manures on the (WHITSON, WELLS, and VIVIAN), A., ii, 47.
- decomposition, rate of, in different diets (VOGT), A., ii, 779.
- in the digestive canal (LONDON), A., ii, 464.
- food, considerations on, with reference to the various forms of nitrogen it contains (BARKER and COHOE), A., ii, 102.
- abundant, influence of, on metabolism (SCHREUER), A., ii, 101.
- hydrolysis, influence of salts intimately united with albuminous material and with enzymes on (MALFITANO), A., ii, 100.
- tryptic, liberation of tyrosine during (BROWN and MILLAR), T., 145.
- metabolism. See under Metabolism.
- peptone. See Peptone.
- preparations, examination of (BERGELL and DÖRPINGHAUS), A., i, 52.
- synthesis in the animal body (LÜTHJE), A., ii, 690.
- Proteids**, polypeptides, and amino-acids (FISCHER), A., i, 324.
- changes of refractive properties of, produced by acids, bacteria, and ferments (OBERMAYER and PICK), A., ii, 100.
- the electric charge of, and its significance (PAULI), A., i, 545; ii, 180.
- and electrolytes, relation between (LA FRANCA), A., ii, 789.
- equilibrium between electrolytes and (GUERRINI), A., i, 466; (GALEOTTI), A., i, 912.
- influence of calcium salts on the heat coagulation of (MURRAY), A., ii, 291.
- action of dilute hydrochloric acid on (SWIRLOWSKY), A., i, 775.
- absorption of, from the intestine (CATHCART and LEATHES), A., ii, 181.
- cleavage of, in the intestine (COHN-HEIM), A., ii, 871.
- assimilation of, in animals (ABDERHALDEN and RONA), A., ii, 464.
- decomposition of (DENNSTEDT and HASSLER), A., i, 916.
- hydrolysis of, and physiology (ABDERHALDEN), A., ii, 460.
- formation of dipeptides by the hydrolysis of (FISCHER and ABDERHALDEN), A., i, 718.
- nutrition with, and glycogen analysis (PFLÜGER), A., ii, 240.
- digestion of, in the dog's alimentary canal (ABDERHALDEN, KAUTZSCH, and LONDON), A., ii, 778.
- comparative experiments on the natural and artificial digestion of (ROTHE, WANGNICK, and STUTZER), A., ii, 691.
- diminution of the digestibility of (SALECKER and STUTZER), A., ii, 691.
- intramolecular absorption of water in the tryptic digestion of (HÁRI), A., i, 1000.
- containing sulphur, physiological relationships of (FRIEDMANN and BAER), A., i, 802.
- the liver as a store-house for (SEITZ), A., ii, 241.
- ash-constituents of, in relation to adsorption phenomena (BAYLISS), A., ii, 344.
- glutamic acid from (OSBORNE and GILBERT), A., i, 324.
- of beef flesh (TROWBRIDGE and GRINDLEY), A., ii, 374.
- of blood serum (PATEIN), A., ii, 622.
- of milk. See under Milk.
- of muscle, relative proportions of, in physiological and pathological conditions (SAXL), A., ii, 872.

- Proteids** of organs (POHL), A., ii, 106.
 of wheat (OSBORNE and HARRIS; OSBORNE and CLAPP), A., ii, 887.
 influence of light of various kinds on the migration of (DUMONT), A., ii, 117.
 compounds of, with catechol mono-alkyl ethers (FEHRLIN), A., i, 467.
 compounds of, with nucleic acid from the mammary gland in relation to caseinogen formation (LÖBISCH), A., i, 719.
 sensitive colour reaction for (VOISENET), A., ii, 59.
 colour reactions of, with aromatic aldehydes and nitrites (STEENSMA), A., ii, 315.
 colour reaction of formaldehyde with, and its relation to the Adamkiewicz reaction (ROSENHEIM), A., ii, 508.
 estimation of, by acetone (BORDAS and TOUPLAIN), A., ii, 639.
 estimation of digestible, in foods (STUTZER), A., ii, 820.
 estimation of, in milk (TRILLAT and SAUTON), A., ii, 591.
 estimation of, in human milk (SIKES), A., ii, 912.
 estimation of the sugar group in (KRUMMacher), A., i, 391.
- Proteoses**, cleavage products of (LEVENE), A., i, 54.
- Protocatechualdehyde**, preparation of, from heliotropin (FRITZSCHE & Co.), A., i, 513.
 preparation of, from piperonaldehyde or its chloride (SCHIMMEL & Co.), A., i, 513.
- Protocatechuylresacetophenone** tetramethyl ether (PERKIN and WEIZMANN), T., 1653.
- Protocatechuyltropeine** and its additive salts (JOWETT and HANN), T., 364; P., 61.
- Protoveratrime** (BREDEMANN), A., ii, 507.
- Prulaurasin** from the cherry laurel (HÉRISSEY), A., i, 31.
- Prunus Laurocerasus**, cyanogenetic glucoside from (HÉRISSEY), A., i, 31.
- Prussian-blue**, reduction of (KOHN), A., i, 562.
- Pseudo-acids** (v. EULER), A., i, 415, 576; (HANTZSCH), A., i, 576, 883.
 and amphoteric electrolytes (LUNDÉN), A., ii, 265; (HANTZSCH), A., ii, 651.
 condition of, in aqueous solution (LEY and HANTZSCH), A., i, 790.
 having complex functions, invertive power of (TORRESE), A., i, 531.
- Pseudoboleite** (FRIEDEL), A., ii, 455.
- Pseudo-lencite** from Spotted Fawn Creek, Yukon Territory (KNIGHT), A., ii, 682.
- Pseudomorphs** from Canada (GRAHAM), A., ii, 682.
- Pseudotsuga taxifolia**, oleo-resin and terpenes from (FRANKFORTER), A., i, 971.
- Pseuod-wollastonite** and wollastonite (ALLEN and WHITE; WRIGHT), A., ii, 683; (DAY and SHEPHERD), A., ii, 770.
- Pulegony-isooxazolone** and -pyridazine (CLARKE and LAPWORTH), T., 1875.
- Pulegolacetic acid**, barium salt and anhydrides of (VORLÄNDER, MAY, and KÖNIG), A., i, 364.
- Pulegone**, action of potassium cyanide on (CLARKE and LAPWORTH), T., 1869; P., 285.
- Pulegoneacetic acid** and its esters and anhydride, and anhydride of the amide, and semicarbazone (VORLÄNDER, MAY, and KÖNIG), A., i, 363.
- Pulegonecyanoacetic acid**, anhydride and amideanhydride of (VORLÄNDER and KÖTHNER), A., i, 363.
- Pulegonemalonic acid** and anhydride and their esters, and dilactone (VORLÄNDER and KÖTHNER), A., i, 362.
- iso***Pulegyl chloride** and ethyl ether (SEMMLER and RIMPEL), A., i, 682.
- Pump** for the extraction and transport of gases (ANDERLINI), A., ii, 605.
 automatic mercury (ANDERLINI), A., ii, 605.
 mercury, automatic shortened, combined with a compact apparatus for measuring high vacua (UBBELOHDE), A., ii, 432.
 water, Siepermann-Fudickar (v. IHERING), A., ii, 433.
- new form of (VILLIERS), A., ii, 154.
- Pumpkin seeds**, monoamino-acids of the crystalline protein from (ABDERHALDEN and BERGHAUSEN), A., i, 999.
- Purgatives**, saline, effect of (AUER), A., ii, 876.
- Purine**, synthesis of (ISAY), A., i, 218.
- Purines**, formation of, from carbamido-pyrimidines (JOHNSON and McCOLLM), A., i, 769.
- Purine substances**, endogenous, excretion of, in man (MACLEOD and HASKINS), A., ii, 874.
 and uric acid, excretion of (FAUVEL), A., ii, 564.
 of the urine of ox, horse, and pig (SCHITTENHELM and BENDIX), A., ii, 564.

- Purple of Cassius**, new preparation of (MOISSAN), A., ii, 92.
- Purpuric acid**, constitution of, and its alkylamine salts (MÖHLAU and LITTER), A., i, 611.
- Purpuric acids**, aromatic, constitution of (BORSCHE and HEYDE), A., i, 15.
- constitution of, and their behaviour on oxidation with potassium hypobromite (BORSCHE and GAHRITZ), A., i, 957.
- Purpurin**, methyl ether of (GRAEBE and BERNHARD), A., i, 865.
- Purpurin-3:8-disulphonic acid** and its acid potassium salt (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 867.
- Purpurin-3-sulphonic acid** and its salts (SCHULTZ and ERBER), A., i, 969.
- Purpuroxanthin**, methyl ethers of (GRAEBE and BERNHARD), A., i, 865.
- Putrefaction**, studies on (RETTGER), A., ii, 791.
- Fylocic juice**, proteolytic enzymes of the (ABDERHALDEN and RONA), A., ii, 462.
- Pylorus**, mechanism of the (CANNON; CANNON and MURPHY), A., ii, 180.
- Pyramidone**, action of Nessler's solution on (RAIKOW and KÜLUMOW), A., i, 112.
- hydrobromide and hydrochloride (ASTRE and AUBOY), A., i, 989.
- Pyran series**, researches in the (BLAISE and GAULT), A., i, 300.
- Pyrazole**, action of sulphuryl chloride on (MAZZARA and BORGO), A., i, 702.
- derivatives, general method of synthesising (MINUNNI, VASSALLO, CIUSA, and LAZZARINI), A., i, 114; (MINUNNI and LAZZARINI), A., i, 385, 388.
- Pyrazole**, 4-chloro-, crystallographic constants of (VIOLA), A., i, 893.
- Pyrazoles**, preparation of, from anthraquinone derivatives (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 904.
- Pyrazolones**, new methods of synthesis of (MOUREU and LAZENNEC), A., i, 702.
- condensation reaction of (BETTI and MUNDICI), A., i, 543.
- condensation of, with diazobenzene-imides (v. WALTHER and ROTHACKER), A., i, 911.
- Pyridine**, physical constants of pure (v. ZAWIDZKI), A., i, 381.
- influence of salts on the boiling point of (WALDEN and CENTNERSZWER), A., ii, 333.
- Pyridine**, action of, on 1:5-dichloro-2:4-dinitrobenzene (REITZENSTEIN and ROTHSCHILD), A., i, 454.
- action of, on salicyl chlorides (EARLE and JACKSON), A., i, 177.
- compounds, formation of, from arylamine derivatives of furfuraldehyde (ZINCKE and MÜHLHAUSEN), A., i, 33; (KÖNIG; DIECKMANN, BECK, and SZELINSKI), A., i, 109.
- with chromous salts (SAND and BURGER), A., i, 487.
- with hydroxychromium salts (PFEIFFER, TAPUACH, and OSANN), A., i, 531; (PFEIFFER and TAPUACH), A., i, 532.
- with chromothiocyanates (PFEIFFER and OSANN), A., i, 602.
- with cobalt chloride and its salts (WERNER and FEENSTRA), A., i, 450.
- with copper salts (PFEIFFER and PIMMER), A., i, 104.
- with mercuric iodide (FRANÇOIS), A., i, 644.
- with metallic thiocyanates (GROSSMANN and HÜNSELER), A., i, 7.
- with molybdenum salts (ROSENHEIM and Koss), A., i, 603.
- with molybdenum and thiocyanic acid (SAND and BURGER), A., i, 487.
- with palladium haloids (GUTBIER and KRELL), A., i, 244; (MÖHLAU), A., i, 304.
- ethyl iodide, action of chlorine on (WERNER), T., 1636; P., 258.
- Pyridine bases**, synthesis of, from saturated aldehydes and ammonia (TSCHITSCHIBABIN), A., i, 451.
- Pyridine-3-carboxylic acid**. See Nicotinic acid.
- Pyridine-4-carboxylic acid**, 2:6-dihydroxy-. See Citrazinic acid.
- Pyridinecarboxylic acids**, hydroxy-, action of diazomethane on (MEYER), A., i, 108.
- Pyridine-2:3-dicarboxylic acid**. See Quinolinic acid.
- Pyridines**, incompletely hydrogenated, formation of, by the Wyschnegradsky-Ladenburg reaction (TSCHITSCHIBABIN), A., i, 36.
- Pyridine series**, azo-colouring matters of the (BAUMERT), A., i, 909.
- Pyridinium tetrachlorohydroxychromanate** (WEINLAND and FRIDRICH), A., i, 37.
- Pyridones**, action of diazomethane on (MEYER), A., i, 108.

- 4-Pyridones**, etherification of, with diazo-derivatives of aliphatic hydrocarbons (PERATONER and AZZARELLO), A., i, 381.
- Pyrimidine**, amino-, chloronitro-, chloronitroamino-, nitroamino-, and 8-thio-derivatives, and their additive salts and acyl derivatives (ISAY), A., i, 218.
- 4:5-diamino-2:6-dihydroxy-, and its 3-methyl and 1:3-dimethyl derivatives (MERCK), A., i, 214, 536.
- 2:6-dichloro- (JOHNSON and MENGE), A., i, 987.
- 2-cyanoamino-4-mono- and 4:5-diamino-6-hydroxy- (MERCK), A., i, 456.
- 2:4:6-trümino- (*trüminobarbituric acid*), and its derivatives (MERCK), A., i, 537.
- 5-iodo-, derivatives of (JOHNSON and JOHNS), A., i, 455.
- Pyrimidine bases**, preparation of (MERCK), A., i, 537, 703, 715; (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 538.
- of the nucleic acid from fishes' eggs (MANDEL and LEVENE), A., ii, 375.
- Pyrimidines** (JOHNSON and JOHNS), A., i, 113; (JOHNSON and MCCOLLUM), A., i, 768, 769; (JOHNSON, JOHNS, and HEYL), A., i, 770.
- synthesis of (JOHNSON and MCCOLLUM), A., i, 704; (JOHNSON and MENGE), A., i, 986.
- Pyrites** from the tourmaline lodes of the granite of S. Piero in Campo (Elba) (D'ACHIARDI), A., ii, 555.
- estimation of sulphur in (RASCHIG), A., ii, 305; (GYZANDER), A., ii, 391; (DENNSTEDT and HASSSLER), A., ii, 896.
- estimation of sulphuric acid in, by means of barium chloride in presence of interfering substances (LUNGE and STIERLIN), A., ii, 124.
- zinciferous, estimation of sulphur in (LUNGE and STIERLIN), A., ii, 195.
- Pyrocatechol**. See Catechol.
- Pyrocrorite**, crystalline, from Långban (SJÖGREN), A., ii, 553.
- Pyrocinchonic anhydride**, action of ammonia on (ROSSI), A., i, 138.
- Pyrogallol**, action of isoamyl nitrite on, and its triacetyl derivative (PERKIN and STEVEN), T., 802; P., 113.
- derivatives (PERKIN and WEIZMANN), T., 1649; P., 269.
- 1:3-dialkyl ethers of (BASLER CHEMISCHE FABRIK), A., i, 742.
- Pyromelliteins**, structure of (SILBERRAD), T., 1787; P., 252.
- Pyromellitic acid**, condensation of, with resorcinol (SILBERRAD), T., 1787; P., 251.
- 4-Pyrones**, brominated, and their hydroperbromides (FEIST), A., i, 974.
- Pyronones**, synthesis of, from acid haloids (WEDEKIND), A., i, 528.
- Pyrophosphoric acid**. See under Phosphorus.
- Pyrophthalone** and its derivatives (EIBNER and LÖBERING), A., i, 700.
- Pyrotetraeric acid**, synthesis of (HALLER and BLANC), A., i, 625.
- Pyroxene**, rhombic, ratio of iron and magnesium in (SCHILLER), A., ii, 770.
- Pyroxenes**, orthorhombic and monoclinic, preparation of (ALLEN, WRIGHT, and CLEMENT), A., ii, 866.
- Pyrhotite**, crystalline form of (KAISER), A., ii, 455.
- coexistence of paramagnetism and diamagnetism in the same crystal of (MESLIN), A., ii, 69.
- $\beta\beta'$ -**Pyrrodiazole**, N-amino-. See 1:3:4-Triazole, 1-amino-.
- Pyrrole**, constitutional formula of (CIAMICIAN), A., i, 104.
- products of hydrogenation of, by means of reduced nickel (PADOA), A., i, 530.
- Pyrrole, tetraido-**, action of chlorine on (WERNER), T., 1634; P., 258.
- Pyrvnic acid** and its derivatives, action of urethane on (SIMON), A., i, 733.
- reactions of (OECHSNER DE CONINCK), A., i, 137.
- Pyrvic acid**, salts, transformations of (DE JONG), A., i, 623.
- Pyrvic acid**, *l*-bornyl ester, asymmetric syntheses from (McKENZIE and WREN), T., 688; P., 107.
- Pyrvic ureide and methyl- and ethylureides** (GABRIEL), A., i, 634.

Q.

- Quartz**, formation of (KÖNIGSBERGER and MÜLLER), A., ii, 553.
- variations in certain properties of (BUISSON), A., ii, 350.
- fluorescence of, caused by radiotellurium (GREINACHER), A., ii, 410.
- pyroluminescence of (GOLDSCHMIDT), A., ii, 409.
- adsorption of water vapour and of certain salts in aqueous solution by (BRIGGS), A., ii, 13.
- Quartz crystals**, Alpine, fluid enclosures of (KÖNIGSBERGER and MÜLLER), A., ii, 235, 553.

- Quebrachitol**, occurrence of, in the latex of *Hevea brasiliensis* (DE JONG), A., ii, 248.
- Quebracho tannin** (STRAUSS and GSCHWENDNER), A., i, 596; (NIERENSTEIN), A., i, 761.
- β -Quinaclid-3:4-azine** and its additive salts (v. NIEMENTOWSKI), A., i, 210.
- β -Quinacridine**, 4-hydroxy- (4-keto-3:4-dihydro- β -quinacridine), and its acetyl derivative (v. NIEMENTOWSKI), A., i, 209.
- Quinacridone** (ULLMANN and MAAG), A., i, 459.
- Quinaldine**. See 2-Methylquinoline.
- Quinaldic acid**. See Quinoline-2-carboxylic acid.
- Quinazoline** alkyl haloids and hydroxide (GABRIEL and COLMAN), A., i, 209.
- 5-amino-4-hydroxy-. See 4-Ketodihydroquinazoline, 5-amino-.
- Quinazolines** (BOGERT and SEIL), A., i, 712; (BOGERT and COOK), A., i, 988.
- from *o*-amino-*m*-xylyl-*p*-toluidine (v. WALTHER and BAMBERG), A., i, 385.
- o*-Quinhydrone**, octabromo- (JACKSON and RUSSE), A., i, 289.
- Quinic acid**, esters and alkaloidal salts (ECHTERMEIER), A., i, 367.
- Quinine**, reaction between chromic acid and, in light (GOLDBERG), A., ii, 514.
- action of, on enzymes (LAQUEUR), A., ii, 870.
- action of, on haemoglobin (MARX), A., i, 546.
- acetylsalicylic acid salt of (SANTI), A., i, 977.
- formates (GUIGUES), A., i, 977.
- sulphate, radiation of (KALÄHNE), A., ii, 2.
- tannate (NIERENSTEIN), A., i, 529.
- Quinine**, thio- (COMANDUCCI and PESCIETTI), A., i, 977.
- Quinizarin**, formation of (HASLINGER), A., i, 967.
- chloro-derivatives (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 867.
- Quinizarin-green**, α -hydroxy- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 679.
- o*-Quinocatechol** ether, hexachloro- (JACKSON and MACLAURIN), A., i, 97.
- hemither and ether, heptabromo- (JACKSON and RUSSE), A., i, 288.
- Quinoidine**, reactions of (REICHARD), A., ii, 818.
- Quinol**, dibenzoyl derivative of (ECHTERMEIER), A., i, 368.
- dibromodicyano-**, and its diacetate, chlorodicyano-, and its diacetate, dichlorodicyano-, and its diacetate, chlorohydroxy-, triacetate of, dicyano-, and its methyl ethers and acetates, and 2:3-dicyano-6-hydroxy-, and its triacetate (THIELE and GÜNTHER), A., i, 743.
- dicyano-, and its dimethyl ether, fluorescence of (KAUFFMANN and GROMBACH), A., i, 287.
- 3-Quinolinamic acid** and its ammonium salt (KIRPAL), A., i, 697.
- Quinoline**, reaction of, with benzaldehyde in sunlight (BENRATH), A., i, 535.
- nitration of (KAUFMANN and DECKER), A., i, 984.
- formation of indigotin from (DECKER and KORP), A., i, 180.
- transformation of, into 2-methylindole (PADOA and CARUGHI), A., i, 765.
- behaviour of, in the animal body (FÜHNER), A., ii, 692.
- compound with copper salts (PFEIFFER and PIMMER), A., i, 104.
- with metallic thiocyanates (GROSSMANN and HÜNSELER), A., i, 7.
- with molybdenum salts (ROSENHEIM and KOSS), A., i, 603.
- with palladium haloids (GUTBIER and KRELL), A., i, 244; (MÖHLAU), A., i, 304.
- derivatives (KAUFMANN and DECKER), A., i, 984.
- formate, therapeutic application of (PICCININI), A., ii, 693.
- hydrochlorides and acyl chlorides (ECKSTEIN), A., i, 604.
- Quinoline**, 5:6-dibromo-, 5-bromo-6-amino-, and 5:6-dibromo-8-nitro- (MEIGEN), A., i, 382.
- 4-hydroxy- (*kynurine*), ethers of (MEYER), A., i, 604.
- Quinoline bases**, action of alkyl sulphates and sulphonates on (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 885.
- iso***Quinoline** derivatives from 4-methylphthalic acid (FINDEKLEE), A., i, 42.
- 8-Quinolinealdehyde**, 5-nitro- (HOWITZ and NÖTHER), A., i, 885.
- Quinolineazine** and its platinichloride (MEIGEN and NOTTEBOHM), A., i, 319.
- Quinoline-2-carboxylic acid** and its nitro-derivatives and methyl ester and amide (BESTHORN and IBELE), A., i, 605.

- Quinoline-4-carboxylic acid.** See Cinchonic acid.
- Quinoline-8-carboxylic acid,** 5-nitro-(HOWITZ and NÖTHER), A., i, 885.
- Quinoline-7:8-dicarboxylic acid** and its salts (HAID), A., i, 606.
- Quinoline group,** syntheses in the (SIMON and MAUGUIN), A., i, 887, 888.
- 5:6-Quinolinequinone** (FÜHNER), A., ii, 692.
- Quinolinic acid,** esters and imide (KIRPAL), A., i, 697.
- Quinolinium tetrachlorohydroxychromanate** (WEINLAND and FRIDRICH), A., i, 37.
- Quinolinium series,** colouring matters of the (FARBWERKE VORM. MEISTERL, LUCIUS, & BRÜNING), A., i, 886.
- Quinolphthalein salts,** constitution of (GREEN and KING), A., i, 670. hydroxy-, salts of (HELLER and LANGKOPF), A., i, 671.
- Quinolylacetophenone-*o*-carboxylic acid,** reactions of, and its ethyl ester (EIBNER), A., i, 588.
- Quinolymethylamine,** 2-hydroxy-, *N*-benzoyl derivative of (EINHORN, BISCHKOPFF, and SZELINSKI), A., i, 247.
- Quinonaphthalones,** *s*- and *as*-, and *as*-Quinonaphthaline and its bromo-derivative (EIBNER and LÖBERING), A., i, 606.
- o*-**Quinone.** See *o*-Benzoinone.
- p*-**Quinone.** See *p*-Benzoinone.
- Quinoneazines** (WILLSTATTER and BENZ), A., i, 997.
- Quinoned-imine salts,** coloured and colourless (KEHRMANN), A., i, 46.
- Quinonehydrazones,** relation between *p*-hydroxyazo-compounds and (BORSCHE and KÜHL), A., i, 319.
- Quinone- α -methylphenazine,** reduction of (LEICESTER), P., 41.
- Quinoneoximehydrazones** and their acyl derivatives (BORSCHE), A., i, 319.
- Quinoneoximephenylsemicarbazones** (BORSCHE and KÜHL), A., i, 320.
- Quinones,** the relation between the absorption spectra and chemical constitution of (BALY and STEWART), T., 502; P., 34; (STEWART and BALY), T., 618; P., 85. action of, on *o*-diamines, *o*- and *m*-nitroanilines, and 2-nitro-*p*-toluidine (LEICESTER), P., 41. additive compounds of, with cyclopentadiene (ALBRECHT), A., i, 674. substituted, reactivity of (STEWART and BALY), T., 618; P., 85.
- as*-**Quinophthalone,** conversion of, into its sodium derivative (EIBNER), A., i, 588.
- R.**
- Rabies,** action of radium on the virus of (DANYSZ), A., ii, 379.
- Racemic acid** (*p*-tartaric acid) and *d*- and *i*-tartaric acids, separation of (WINTHER), A., ii, 736.
- Racemic amino-acids,** behaviour of, towards yeast; new biological method for resolving them (EHRLICH), A., i, 807.
- Racemic compounds,** resolution of (MARCKWALD and PAUL), A., i, 958.
- Racemisation,** catalytic, researches on (WINTHER), A., ii, 736.
- Radiations, Radioactive substances,** and **Radioactivity.** See under Photochemistry.
- Radicles,** alkyl, replacement of ethoxyl and methoxyl groups by (REFORMATSKY), A., i, 136; (TSCHITSCHIBABIN), A., i, 397.
- Radioactinium** (HAHN), A., ii, 323.
- Radiobacter,** chemical processes in the assimilation of elementary nitrogen by (STOKLASA, TRNKA and VÍTEK), A., ii, 382.
- Radiotellurium** and polonium (MARCKWALD), A., ii, 721. fluorescence caused by (GREINACHER), A., ii, 410. radiations emitted by (EWERS), A., ii, 322. rays, spectrum of the nitrogen glow produced by (WALTER), A., ii, 516.
- Radiothorium,** quantitative separation of, from the mud of Echaillon and Salins Moutiers (BLANC), A., ii, 323; (ANGELOCCI), A., ii, 594. some properties of α -rays from (HAHN), A., ii, 416, 594. separation of, from salts of thorium (BLANC and ANGELOCCI), A., ii, 644.
- Radishes,** enzymatic action of (SAIKI), A., ii, 796.
- Radium** in Sweden (LANDIN), A., ii, 63. distribution of, in the earth's crust, and the earth's internal heat (STRUTT), A., ii, 411, 716. indirect proof of the presence of, in Carlsbad hot springs (KNETT), A., ii, 412. and uranium, relative proportion of, in radioactive minerals (RUTHERFORD and BOLTWOOD), A., ii, 593. measurement of, in minerals by the γ -radiation (EVE), A., ii, 593.

- Radium emanation**, effect of high temperatures on (MAKOWER), A., ii, 259.
rays, influence of, on the conductivity of electrolytes (SABAT), A., ii, 643.
 increase of conductivity of dielectrics caused by the action of (BECKER), A., ii, 322.
 relative absorption of the rays of polonium and (RIECKE, RETSCHINSKY, and WIGGER), A., ii, 63.
 action of, on mixtures of hydrogen and chlorine and of hydrogen and oxygen (JORISSEN and RINGER), A., ii, 515.
 action of, on tyrosinase (WILCOCK), A., i, 548.
 action of, on the peripheral nerves (BECK), A., ii, 40.
 α -rays, some properties of (RUTHERFORD), A., ii, 139; (BECQUEREL), A., ii, 212.
 absorption of (McCLUNG), A., ii, 138.
 α -particles, mass and velocity of the (RUTHERFORD), A., ii, 719.
 ionisation of various gases by (BRAGG), A., ii, 322.
 retardation of the, in passing through matter (RUTHERFORD), A., ii, 642.
 β - and γ -rays, ionisation produced in various gases by secondary (KUČERA), A., ii, 140.
 emission of heat by (ANGSTRÖM), A., ii, 63.
 production of helium from (CROOKES), A., ii, 717.
 action of, on the virus of rabies (DANYSZ), A., ii, 379.
Radium salts, radioactivity of (BOLTWOOD), A., ii, 413.
 action of, on gelatin (RUDGE), A., ii, 412.
Radium bromide, luminescence of (WALTER and POHL), A., ii, 2.
 conductivity of aqueous solutions of (KOHLRAUSCH and HENNING), A., ii, 717.
 spectrum analysis of the light emitted by crystals of (HIMSTEDT and MEYER), A., ii, 62.
barium bromides, physiological action of (BERG and WELKER), A., ii, 373.
 chloride, coloration of didymium glass by (BASKERVILLE), A., ii, 824.
Radium A, B, and C, periods of transformation of (BRONSON), A., ii, 594.
Radium C, separation of, from radium B (v. LERCH), A., ii, 514.
- Raffinose**, hydrolysis of, by means of citric acid (PIERAERTS), A., i, 729.
 and sucrose, optical estimation of mixtures of (PIERAERTS), A., ii, 811.
- Rain water**. See under Water.
- Rare earths**. See Earths, rare.
- Raspberry juice**, acids in (KAYSER), A., ii, 387.
 analysis of (HEFELMANN, MAUZ, and MÜLLER), A., ii, 387.
- Rats**, feeding experiments on (JACOB), A., ii, 561.
- Rays**. See under Photochemistry.
- Reaction and Reaction velocities**. See under Affinity, chemical.
- Reducing agent**, sodium hyposulphite as a (GRANDMOUGIN), A., i, 716, 967.
- Reducing agents**, estimation of (MATHEWSON and CALVIN), A., ii, 704.
- Reductases** of cow's milk (SELIGMANN), A., ii, 467.
- Refractive index and Refraction**. See under Photochemistry.
- Refractometry**. See under Analysis.
- Regulator**, simple toluene, for thermostats (LUNDÉN and TATE), A., ii, 831.
- Rennet ferment**, action of, on casein (PETRY), A., i, 469.
- Rennin** (*chymosin, rennet*), identity of, with pepsin (SAWJALOFF), A., ii, 98.
 the supposed identity of, with pepsin (SCHMIDT-NIELSEN), A., i, 720.
 action of, on milk (REICHEL and SPIRO), A., i, 127.
 new method of estimating (BLUM and FULD), A., ii, 207.
- Rennin coagulation**, nature and effects of (SPIRO), A., i, 919.
- Resacetophenone** dimethyl ether, condensation of, with piperonal and with ethyl veratrate (PERKIN and WEIZMANN), T., 1653.
- Resin acids** from conifers (VESTERBERG), A., i, 92.
 from *Pinus Abies* (KLASON and KÖHLER), A., i, 100.
- Resins**, chlorobenzenes as solvents for (ANDÉS), A., i, 154.
 See also Balsam, Copals, Elemi resins, Guaiacum resin, and Oleo-resins.
- Resomorin**. See Flavonol, 7:2':4'-tri-hydroxy-.
- Resorcinol**, condensation of, with mellitic and pyromellitic acids (SILBERRAD), T., 1787; P., 251.
 dimethyl ether, 2-nitro-, and diethyl ether, 2- and 4-nitro- (KAUFFMANN and FRANCK), A., i, 842.
 2- and 5-nitro- (VERMEULEN), A., i, 256,

- Resorcinol**, detection of traces of (CAROBIO), A., ii, 809.
- Resorcinol**, 2-amino-, and its *N*-benzoyl derivative and its nitroso-compound, and hydrochloride (KAUFFMANN and DE PAY), A., i, 168.
- 2-nitro-, and its reactions with diazo-benzene chloride and dibenzoyl derivative (KAUFFMANN and DE PAY), A., i, 168.
- Resorcinoldiazonium anhydride**, nitroso-derivative (KAUFFMANN and DE PAY), A., i, 168.
- Respiration**, effect of blood pressure on (GUTHRIE and PIKE), A., ii, 686.
- of mixtures of air and 5 to 10 per cent. of carbon dioxide (GRÉHANT), A., ii, 621.
- of fish, action of carbon dioxide on the (OSBORNE and MUNTZ), A., ii, 776.
- of organs, estimation of oxygen in salt solution in determinations of the (BARCROFT and HAMILL), A., ii, 798.
- Rhamnose**, alkylation of (PURDIE and YOUNG), T., 1194; P., 201.
- Rhamnus cathartica*, fatty oils from the seeds of the berries of (KRASOWSKI), A., ii, 883.
- Rheadine** and **Rheagenine** from Papaver (PAVESI), A., ii, 483.
- apoRhodamine* esters and imide (NOELTING and DZIEWONSKI), A., i, 874.
- Rhodamines** (NOELTING and DZIEWOŃSKI), A., i, 874.
- Rhodanic acid**, condensation of, with aldehydes (BARGELLINI), A., i, 383, 536.
- Rhodeitol** (VOTOČEK and BULÍŘ), A., i, 483.
- Rhodeose**, preparation and constitution of (VOTOČEK and BULÍŘ), A., i, 483.
- Rhodium**, boiling of (MOISSAN), A., ii, 175.
- Rhodochrosite** from S. Barthélémy, Val d'Aosta (MILLOSEVICH), A., ii, 368.
- Rhodonite** from Chiaves, Valli di Lanzo (ROCCATI), A., ii, 459.
- Rhus Toxicodendron*, constituents of (ACREE and SYME), A., ii, 795.
- Rice**, detection of, in wheat flour (GASTINE), A., ii, 587.
- Rice plants**, application of magnesia to (DAIKUHARA), A., ii, 388.
- stimulating action of manganese on (NAGAOKA), A., ii, 888.
- manurial value of different potassium compounds for (Asō), A., ii, 891.
- Ricin**, action of, on blood corpuscles and on lecithin (PASCUCCI), A., ii, 96.
- Ricinus residues** (HALENKE and KLING), A., ii, 387.
- Rigor mortis** (KARPA), A., ii, 374.
- Ring-formation** (MEYER, JAEGER, V. LUTZAU, and MAIER), A., i, 765.
- Ring systems**, stability of different (HARRIES and NERESHEIMER), A., i, 833.
- Rock salt** of Roumania, gases in the (COSTACHESCU), A., ii, 618.
- coloration of (WÖHLER and KASARNOWSKI), A., ii, 22.
- blue (PIESZCZEK), A., ii, 863.
- ultranicroscopic examination of the colours of (STEDENTOFF), A., ii, 443.
- Rocks** from British Central Africa, A., ii, 684.
- volcanic, from Graham's Land, Antarctic (GOURDON), A., ii, 621.
- Röntgen rays**. See under Photochemistry.
- Root sap acidity** (SUTHERST), A., ii, 300.
- Root secretions** (PRIANISCHNIKOFF), A., ii, 45.
- Roots** of flowering plants, oxidising power of the absorbent surfaces of (RACIBORSKI), A., ii, 45.
- and mould hyphae, separation of acids by, and its signification (KUNZE), A., ii, 480.
- Rosaceæ**, occurrence of hydrogen cyanide in (GUIGNARD), A., ii, 795.
- Rosaniline**, colourless soluble salts of (FARBWERKE VORM. MEISTER, LUCIUS, and BRÜNING), A., i, 712.
- Rosanilines**, chemical and thermochemical researches on the constitution of (SCHIMIDLIN), A., i, 211.
- isoRosindone*, and allied substances, constitution of (DECKER and WÜRSCH), A., i, 905.
- Rotation**. See under Photochemistry.
- Rottlerin** and ψ -**Rottlerin** (TELLE), A., i, 973.
- Rubber**, "Dande," from Rhodesia, A., i, 299.
- "Muteke," from North-Eastern Rhodesia, A., i, 299.
- See also Caoutchouc.
- Rubbertree**, Para. See *Hevca brasiliensis*.
- Rubidium**, excretion of (MENDEL and CLOSSON), A., ii, 469.
- Rubidium-ammonium**, action of oxygen on (RENGADE), A., ii, 539.
- Rubidium chlorides and sulphates**, thermochemistry of (DE FORCRAND), A., ii, 654.
- chromates (SCHREINEMAKERS and FILIPPO), A., ii, 445.
- hydroxide and its hydrate (DE FORCRAND), A., ii, 445.

- Rubidium polyiodides** (ABEGG and HAMBURGER), A., ii, 748.
iron selenium alum (RONCAGLIOLI), A., ii, 232.
vanadium sulphate (STÄHLER and WIRTHWEIN), A., ii, 34.
sulphides (BILTZ and WILKE-DÖRFURT), A., ii, 283, 611.
Rubijervine (BREDEMANN), A., ii, 506.
Rue, oil of (CARETTE), A., i, 685.
 dried garden, oil of (HAENSEL), A., i, 524.
Ruthenium, boiling of (MOISSAN), A., ii, 175.
Rutile and haematite, regular intergrowth of (BAUMHAUER), A., ii, 456.

S.

- "Saccharin."** See *o*-Benzoic sulphinide.
Saccharose. See Sucrose.
Saffron, colouring matter in (DECKER), A., i, 686.
Safrole oxide (FOURNEAU and TIFFE-NEAU), A., i, 20.
isoSafrole, action of mercuric acetate on (BALBIANO and PAOLINI), A., i, 187.
 oxide and its isomeride (HOERING), A., i, 951.
Saké disease, new mycoderma yeast as a cause of (TAKAHASHI), A., ii, 880.
Salical- See Salicylidene.
Salicin, constitution of, and the synthesis of its pentamethyl derivative (IRVINE and ROSE), T., 814; P., 113.
Salicylaldehyde, electrolytic reduction of (LAW), T., 1516, 1525; P., 237.
 action of zinc on a mixture of, with ethyl α -bromopropionate (BAIDAKOWSKY), A., i, 178.
Salicylamide, labile isomerism among acyl derivatives of (McCONNAN and TITHERLEY), T., 1318; P., 238.
Salicylic acid, preparation of, from *o*-cresol (RUDOLPH), A., i, 361.
 formation of, from sodium phenoxide (MOLL VAN CHARANTE), A., i, 665.
 action of phosphorus chlorides on (ANSCHÜTZ), A., i, 501.
 distribution of, in normal and infected animals (BONDI and JACOBY), A., ii, 106.
 derivatives (JOWETT and PYMAN), P., 317.
 detection of, in alimentary products (GORNI), A., ii, 313.
Salicylic acid, bismuth salts (CHEMISCHE FABRIK VON HEYDEN), A., i, 665.

- Salicylic acid**, sodium salt, action of, on yeast cells (DRESER), A., ii, 43.
 salt of, with barium theobromine (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 692.
Salicylic acid, β -hydroxyethyl ester (BADISCHE ANILIN- & SODA-FABRIK), A., i, 957.
Salicylic acid, 5-amino-, preparation of (PUXEEDDU), A., i, 957.
3:5-diamino-, 5-N-acetyl derivative of, and its diazotisation (CASELLA & Co.), A., i, 908.
3:5-dibromo-, and its derivatives, and the action of phosphorus chlorides on (ANSCHÜTZ and ROBITSEK) A., i, 503.
3-chloro-, and its derivatives, and the action of phosphorus chlorides on (ANSCHÜTZ and ANSPACH), A., i, 502.
5-chloro-, action of phosphorus chlorides on (ANSCHÜTZ and ANSPACH), A., i, 503.
3:5-dichloro-, and its derivatives and the action of phosphorus chlorides on (ANSCHÜTZ and MEHRING), A., i, 501.
 halogen-nitro- and nitro-, and the action of phosphorus chlorides on (ANSCHÜTZ, WEBER, SIEBEN, and ANSPACH), A., i, 505.
3:5-diido-, and its derivatives, and the action of phosphorus chlorides on (ANSCHÜTZ, ROBITSEK, and SCHMITZ), A., i, 504.
Salicylic chloride, 3:5-dibromo- and dichloro-, action of pyridine on (EARLE and JACKSON), A., i, 177.
3:5-dihalogen-, action of benzene and aluminium chloride on (ANSCHÜTZ, SHORES, LÖWENBERG, and SCHMITZ), A., i, 516.
Salicylide, 3:5-dibromo-, and its polymeride (ANSCHÜTZ and ROBITSEK), A., i, 504.
3-chloro-, and its polymeride (ANSCHÜTZ and ANSPACH), A., i, 502.
3:5-dichloro-, polymeride of (ANSCHÜTZ and MEHRING), A., i, 502.
 β -3:5-diido- (ANSCHÜTZ, ROBITSEK, and SCHMITZ), A., i, 504.
3:5-dinitro-, polymeride of (ANSCHÜTZ, WEBER, SIEBEN, and ANSPACH), A., i, 505.
Salicylideneaniline picrate (CIUSA), A., i, 962.
Salicylidene-bis diazomethane and *C*-dimethyltetrazoline (RUHEMANN), T., 1271; P., 238.
Salicylidenedimethoxy- α -hydrindone (PERKIN and ROBINSON), P., 161.

- Salicylidene- α -hydrindone** (PERKIN and ROBINSON), P., 160.
- Salicyliminodimethyl ether**, dibenzoyl derivative (EINHORN and SCHUPP), A., i, 248.
- Salicylphosphorous chloride**, constitution and reactions of (ANSCHÜTZ), A., i, 501.
- 3:5-dibromo- (ANSCHÜTZ and ROBITSEK), A., i, 504.
- 3-chloro- (ANSCHÜTZ and ANSPACH), A., i, 502.
- 5-chloro- (ANSCHÜTZ and ANSPACH), A., i, 503.
- 3:5-dichloro- (ANSCHÜTZ and MEHRING), A., i, 502.
- 3:5-diiodo- (ANSCHÜTZ, ROBITSEK, and SCHMITZ), A., i, 504.
- Saligenin** (*o-hydroxybenzyl alcohol*), di- and tetra-bromo-, acetates of (AUWERS and SCHRÖTER), A., i, 259.
- 3:5-dibromo- and -dichloro- (METTLER), A., i, 851.
- Saline vapours**, ionisation of (MOREAU), A., ii, 651.
- mobility of the ions of (MOREAU), A., ii, 68.
- recombination of the ions of (MOREAU), A., ii, 217.
- Salivary digestion**. See under Digestion.
- secretion, adaptation of the, to diet (NEILSON and TERRY), A., ii, 238.
- Saltpetre**. See Potassium nitrate.
- Chili. See Sodium nitrate.
- Salt water**. See Brine.
- Salts**, specific heat of, between -188° and the ordinary temperature (FORCH and NORDMEYER), A., ii, 521.
- molecular condition of some, in pyridine (WALDEN and CENTNER-SZWER), A., ii, 333.
- solidification of, and the accompanying thermal effects (PLATO), A., ii, 521.
- new method of representing graphically aqueous solutions of two and three, with the same ion (JÄNECKE), A., ii, 833.
- reciprocal pairs of, new method of representing graphically (JÄNECKE), A., ii, 833.
- a problem of affinity (MEYERHOFFER), A., ii, 12.
- acid, formation of, in alkaline solution (BENRATH), A., ii, 425.
- inorganic. See Inorganic salts.
- solid, method of analysis of a mixture of four (MEYERHOFFER), A., ii, 12.
- See also Metallic salts.
- Samarium chloride** (MATIGNON), A., ii, 675.
- dichloride (MATIGNON and CAZES), A., ii, 169.
- sulphates (MATIGNON), A., ii, 88.
- Samarous chloride** (MATIGNON and CAZES), A., ii, 675.
- Sambucus nigra*, formation and quantitative variations of the cyanogenetic glucoside of (GUIGNARD), A., ii, 118.
- Santal oil**, preparation of esters of (KNOLL & Co.), A., i, 972.
- Santalyl ethyl carbonate** (KNOLL & Co.), A., i, 972.
- Santhomic acid** (HESSE), A., i, 280.
- Sapindus Rarak*, fruits of (MAY), A., ii, 301.
- Saponin** and **Sapogenin** from *Agrostemma Githago* (BRANDL, MAYR, and VIERLING), A., i, 526.
- Saponaretin** from saponarin (BARGER), T., 1215; P., 194.
- Saponarin**, a new glucoside, coloured blue with iodine, and its nona-acetyl derivative (BARGER), T., 1210; P., 194.
- Saponification**. See Hydrolysis under Affinity, chemical.
- Saponin** and **Sapogenin** and their osazones from the fruits of *Sapindus Rarak* (MAY), A., ii, 301.
- Saponin** from the bark and fruit of *Argiceras majus* (WEISS), A., ii, 571.
- Nessler's reagent as a test for (VAMVAKAS), A., ii, 504.
- Sarcina**, an exclusively anaërobic (BEYERINCK), A., ii, 696.
- Sarcolactic acid**. See *d*-Lactic acid.
- Sarcolite**, microscopical characters of (PAULY), A., ii, 457.
- Scammonin**, sugars of (VOTOČEK and VONDRAČEK), A., i, 378.
- Scammony root**, presence of sucrose in (REQUIER), A., ii, 45.
- Scatole**. See 3-Methylindole.
- Scheelite** from *Traversella* (CÓLOMBA), A., ii, 369; (ZAMBONINI), A., ii, 620.
- Schiff's bases**, isomeric (ANSELMINO), A., i, 13.
- Scopolamine** (SCHMIDT and GAZE), A., i, 103.
- estimation of, in the leaves and stalks of *Datura arborea* (BECKURTS), A., ii, 909.
- Scopoline** and its derivatives (SCHMIDT and GAZE), A., i, 103.
- Sea urchin's eggs**. See under Eggs.
- Sea water**. See under Water.
- Sebacanil,p-anino-** (MEYER and MAIER), A., i, 766.
- Sebacic acid**, derivatives of (KRAFFT), A., i, 553.

- Secalonic acid** and hydroxy-, and **Secalesulphonic acid**, amino- (KRAFT), A., i, 979.
- Secretion** in relation to *diabetes mellitus* (BAINBRIDGE and BEDDARD), A., ii, 786.
- Secretion**, factors influencing (MACCALLUM), A., ii, 376.
- Secretions**, organic, influence of lead salts on the polarimetric investigation of (GROSSMANN), A., ii, 905.
- Seedlings**, composition and metabolism of (SCHULZE), A., ii, 571.
- anaerobic respiration, alcoholic fermentation and formation of acetone in (PALLADIN and KOSTYTSCHEW), A., ii, 696.
- is homogenetic acid formed in, by the decomposition of tyrosine? (SCHULZE and CASTORO), A., ii, 793.
- Seeds**, action of carbon dioxide on the latent life of some dried (BECQUEREL), A., ii, 385.
- treatment of, with copper solutions (BRÉAL), A., ii, 387.
- germinating, rôle of enzymes in the conversion of organic phosphorus in (ZALESKI), A., ii, 881.
- Selenic and Selenious acids.** See under Selenium.
- Selenium**, isolation of pure, from the residues of the lead chamber (KOCH), A., ii, 609.
- obtained with organic reducing agents (OECHSNER DE CONINCK and CHAUVENET), A., ii, 279.
- allotropic forms of (MARC), A., ii, 226.
- photoelectric effect of (CARPINI), A., ii, 143.
- sensitiveness of, to light (HESEHUS), A., ii, 348.
- behaviour of, towards light and temperature (MARC), A., ii, 280, 742.
- cathodic behaviour of (LE BLANC), A., ii, 67; (MÜLLER and NOWAKOWSKI), A., ii, 145.
- preparation of colloidal solutions of (MÜLLER and NOWAKOWSKI), A., ii, 18.
- isomorphism of, with tellurium (PELLINI), A., ii, 609; (PELLINI and VIO), A., ii, 663.
- action of, on carbon tetrabromide (V. BARTAL), A., ii, 746.
- action of, on copper (HEYN and BAUER), A., ii, 230.
- behaviour of, in the manufacture of sulphuric acid (LITTMANN), A., ii, 581.
- compounds of, with antimony (PÉLA-BON), A., ii, 173; (CHRÉTIEN), A., ii, 550.
- Selenium fluoride** and its physical constants (PRIDEAUX), T., 320; P. 20.
- dioxide, reactions of (OECHSNER DE CONINCK), A., ii, 280.
- Selenic acid**, reduction of (OECHSNER DE CONINCK and CHAUVENET), A., ii, 279.
- Nitrosylselenic acid** (LENHER and MATHEWS), A., ii, 349.
- Selenious acid**, action of dextrose on (OECHSNER DE CONINCK and CHAUVENET), A., ii, 81.
- action of organic reducing agents on (OECHSNER DE CONINCK and CHAUVENET), A., ii, 436.
- Selenium iron caesium and rubidium alums** (RONCAGLIOLA), A., ii, 232.
- Selenium organic compounds** (STOECKER and KRAFT), A., i, 568; (TABOURY), A., i, 834.
- Selenium**, test for, in sulphuric acid (LITTMANN), A., ii, 531.
- Semen**, microchemical reaction of, and its application in medico-legal investigations (BARBERIO), A., ii, 208.
- toxicity of (LOISEL), A., ii, 112.
- Semicarbazidocamphoformeneamine-carboxylic acid.** See Carbamylcamphoformeneaminecarboxylic acid.
- Separation apparatus** for heavy liquids (KAISER), A., ii, 662.
- Sepia shells**, crystalline chitosan compounds from (v. FÜRTH and RUSSO), A., i, 720.
- Serine**, new synthesis of (LEUCHS and GEIGER), A., i, 806.
- methyl ester, and its hydrochloride, and anhydride (FISCHER and SUZUKI), A., i, 73.
- r*-**Serine**, resolution of, into the optically active components (FISCHER and JACOBS), A., i, 807.
- iso***Serine**, resolution of (FISCHER and JACOBS), A., i, 807.
- Serous fluids**, composition of the residual nitrogen of (NEUBERG and STRAUSS), A., ii, 461.
- Serpentine**, decomposition of (HILLEBRAND), A., ii, 772.
- Serum**, anthrax. See Anthrax.
- anti-oxydasic (GESSARD), A., ii, 373.
- Serum albumin** and myo-albumin distinction between (DE REY-PAILHADE), A., i, 998.
- Serum-globulin**, precipitation of, from blood-serum by means of acetic acid (HUISKAMP), A., i, 224.
- Serum pathology**, analytical methods of (MANWARING), A., ii, 208.

- Serylserine** and its methyl ester, hydrochloride of (FISCHER and SUZUKI), A., i, 73.
- isoSerylserine* and its methyl ester (FISCHER and SUZUKI), A., i, 73.
- Sesamé oil reaction** (SOLTSIEN), A., ii, 502.
- Sesamum**, stimulating action of potassium iodide on (UCHIYAMA), A., ii, 388.
- Sesquiterpene**, new, from the oil from the fruit of *Pittosporum undulatum* (POWER and TUTIN), T., 1090; P., 170.
- $C_{15}H_{24}$ from copaiba balsam from Surinam (VAN ITALLIE and NIEUWLAND), A., i, 596.
- $C_{15}H_{24}$ (two), from oil of myrrh (LEWINSOHN), A., i, 972.
- Sewage**, study of the process of nitrification, with reference to the purification of (CHICK), A., ii, 245.
- estimation of phenol and thiocyanic acid in (KORN), A., ii, 808.
- Shaking apparatus** fitted with a gas delivery tube and a temperature regulator (KEMPF), A., ii, 433.
- Shaking machine** (MANDL and RUSS), A., ii, 154.
- for thermostats (LUNDÉN and TATE), A., ii, 831.
- Sida rhombifolia* bark. See Fibre, "Denji."
- Siderite** from the Sylvester Mine, Vosges, Alsace (UNGEMACH), A., ii, 766.
- Silica.** See Silicon dioxide.
- Silicate fusions** (DOELTER), A., ii, 665; (REITER), A., ii, 865.
- influence of viscosity in (DOELTER), A., ii, 350.
- Silicates, Silicic acid, and Silicides.** See under Silicon.
- Silicoaluminides** (VIGOUROUX), A., ii, 30
- Silicomagnesiofluorite**, a new mineral from Finland (ZEMJATSCHENSKY), A., ii, 681.
- Silicomolybdic acid** and its salts, chemistry and crystallography of (COPAUX), A., ii, 170.
- Silicon** soluble in hydrofluoric acid, preparation of (LEBEAU), A., ii, 168.
- specific heat of, between -188° and the ordinary temperature (FORCH and NORDMEYER), A., ii, 521.
- action of, on pure and impure aluminium (VIGOUROUX), A., ii, 30.
- Silicon alloy** with copper (LEBEAU), A., ii, 29, 168; (VIGOUROUX), A., ii, 168.
- with iron (GUERTLER and TAMMANN), A., ii, 32; (VIGOUROUX), A., ii, 33.
- Silicon compounds** with carbon, volatility in (HENRY), A., i, 549.
- with iron (VANZETTI), A., ii, 614.
- with manganese (DOERINCKEL), A., ii, 676.
- with nickel (GUERTLER and TAMMANN), A., ii, 362.
- with titanium and zirconium (HÖNIG-SCHMID), A., ii, 678.
- Silicon carbide.** See Carborundum.
- tetrachloride, action of, on cobalt (VIGOUROUX), A., ii, 287.
- action of, on iron (VIGOUROUX), A., ii, 32.
- action of, on nickel (VIGOUROUX), A., ii, 451.
- tetrafluoride, melting and boiling points of (MOISSAN), A., ii, 535.
- elimination and alkalimetric estimation of, in the analysis of fluorides (HILEMAN), A., ii, 798.
- Silicides**, constitution of (MANCHOT and KIESER), A., ii, 83.
- Silicon dioxide (silica)**, physical properties of (DAY and SHEPHERD), A., ii, 771.
- estimation of (KNIGHT and MENNEKE), A., ii, 803.
- estimation of, in iron ores containing alumina (DEAN), A., ii, 630.
- Silicic acid**, hydrogel of, preparation and purification of (JORDIS), A., ii, 84.
- Silicic acids**, preparation of, by the decomposition of natural silicates (TSCHERMAK), A., ii, 771; (HILLEBRAND), A., ii, 772.
- Silicio acids, α - and β .** (MYLIUS and GROSCHUFF), A., ii, 160.
- Silicates**, formation of (KÖNIGSBERGER and MÜLLER), A., ii, 553.
- natural, constitution of certain (MCNEIL), A., ii, 457.
- possible relation between the viscosity curves and the molecular volumes of (LOEWINSON-LESSING), A., ii, 459.
- determination of the melting points of, by optical methods (DOELTER), A., ii, 726.
- fused, rate of reaction in (DOELTER), A., ii, 611.
- decomposition of (TSCHERMAK), A., ii, 771; (HILLEBRAND), A., ii, 772.
- decomposition of, with hydrofluoric and hydrochloric acids (HINDEN), A., ii, 579.
- acid and alkaline reaction of (CORN), A., ii, 770.
- analysis of (JORDIS and LUDEWIG), A., ii, 51.

Silicon:—

Hydrofluosilicic acid. See under Fluorine.

Silicon organic compounds (DILTHEY and EDUARDOFF), A., i, 128; (DILTHEY, EDUARDOFF, and SCHUMACHER), A., i, 342.

Silicones (BOUDOUARD), A., i, 563.

Silicon thiocyanate, preparation, constitution, and properties of (REYNOLDS), T., 397; P., 17.

Silicon, estimation of, in presence of silica (PHILLIPS), A., ii, 125.

Sillimanite, axial ratios of (TAUBERT), A., ii, 555.

Silver in the trias of Meurthe-et-Moselle (LAUR), A., ii, 556.

atomic weight of (GUYE), A., ii, 19; (GUYE and TER-GAZARIAN), A., ii, 750.

separation of, by colloidal gold from reduction mixtures containing silver (ZSIGMONDY), A., ii, 679.

electrochemical equivalent of (GUTHÉ), A., ii, 520.

molecular weight of the vapour of (v. WARTENBERG), A., ii, 161.

Silver alloys with antimony, bismuth, and thallium (PETRENKO), A., ii, 667.

with arsenic (FRIEDRICH and LEROUX), A., ii, 283.

with lead (FRIEDRICH and PUCHTA), A., ii, 541.

with magnesium (SCHEMTSCHUSCHNY), A., ii, 539.

with mercury, chemical equilibrium between a solution of silver and mercury nitrates and (REINDERS), A., ii, 219.

with platinum (THOMPSON and MILLER), A., ii, 764.

with zinc (PETRENKO), A., ii, 284.

Silver salts, reactions of acetylene with acidified solutions of (NIEUWLAND and MAGUIRE), A., i, 721.

Silver bromide and chloride, solubility of, at 100° (BÖRTGER), A., ii, 656. chloride, reduction of, by calcium (HACKSPILL), A., ii, 161.

solubility of, in hydrochloride acid and sodium chloride solutions (BARLOW), A., ii, 852.

precipitates, opalescent, estimation of (WELLS), A., ii, 252, 492; (RICHARDS), A., ii, 493.

solutions, equilibria in (WELLS), A., ii, 340.

haloids, formation of mixed crystals of (MÖNKEMEYER), A., ii, 604.

iodide, preparation of the hydrosol of (LOTTERMOSER), A., ii, 429.

Silver nitrate, relative migration velocities of the ions of, in water, methyl and ethyl alcohols, and acetone, and in binary mixtures of these solvents, together with the conductivity of such solutions (JONES and ROUILLER), A., ii, 827.

and mercury nitrate, chemical equilibrium between a solution of, and silver amalgams (REINDERS), A., ii, 219.

reaction of, with organic halogen compounds (v. EULER), A., i, 789.

action of, on disodium orthophosphate in dilute solution (LANG and KAUFMANN), A., ii, 162.

oxide and suboxide (LEWIS), A., ii, 284.

dioxide and peroxy-nitrate (WATSON), T., 578.

peroxide, oxidations with (KEMPF), A., ii, 24, 25.

superoxide (BARBIERI), A., ii, 612. selenide, sulphide, and telluride (PÉLALON), A., ii, 667.

sulphide and silver (FRIEDRICH and LEROUX), A., ii, 751.

Silver thiocyanate, solubility of, at 100° (BÖRTGER), A., ii, 656.

Silver, estimation of (GOLDSCHMIDT), A., ii, 309.

estimation of, in alloys in the wet way (ALTNÉDER), A., ii, 395.

separation of, from silver sulphide in the presence of mercury (HINRICHSEN and WATANABE), A., ii, 85.

Silver coins, assay of, in bulk (HOITSEMA), A., ii, 197.

Silver fir oil (HAENSEL), A., i, 524.

Silver lead mineral from Rosseto, Elba (TARUGI and CALAMAI), A., ii, 620.

Siphon, automatic safety (STEINLEN), A., ii, 531.

Slag, basic, estimation of citrate-soluble and total phosphoric acid in (MACH), A., ii, 50; (SCHENKE), A., ii, 392.

Slags, physical and chemical properties of (TURNER), A., ii, 30.

Snake antivenoms and antisera, precipitins of (HUNTER), A., ii, 113.

Soaps, antiseptic, estimation of mercury and iodine in (SEIDELL), A., ii, 252.

Soapwort, white, the saponin of the (ROSENTHALER), A., i, 32.

Soda-leucite, reformation of (READ and KNIGHT), A., ii, 683.

Sodammonium (JOANNIS), A., ii, 161; (RUFF and GEISEL), A., ii, 228.

Sodium, fluorescence of the vapour of, caused by monochromatic light (WOOD), A., ii, 319.

Sodium, fluorescence and magnetic rotation spectra of the vapour of, and their analysis (WOOD), A., ii, 821.
phosphorescence of (V. MOSENGEIL), A., ii, 714.
vapour pressure of (GEBHARDT), A., ii, 9.
relation of, to potassium in soil and solution cultures (BREEZEAL), A., ii, 891.
Sodium alloys with aluminium, magnesium, and with zinc (MATHEWSON), A., ii, 165.
with antimony, bismuth, cadmium, and lead (MATHEWSON), A., ii, 666.
Sodium salts, isomorphism of, with potassium salts (KURNAKOFF and SCHEMITSCHUSCHNY), A., ii, 443.
Sodium arsenate, influence of, on the fermentation of glucose by yeast-juice (HARDEN and YOUNG), P., 283.
Disodium hydrogen arsenate, preparation of (WULFF), A., ii, 444.
Sodium borate. See Tincal.
borate (*borax*), octahedral, formation of (VAN'T HOFF and BLASDALE), A., ii, 177.
characteristic reaction for (REICHARD), A., ii, 579.
borates (ATTERBERG), A., ii, 281; (DUKELSKI), A., ii, 610.
bromide, transition temperature of (RICHARDS and WELLS), A., ii, 727.
organosols and gels of (PAAL and KÜHN), A., ii, 749.
carbonate and hydroxide, density of solutions of (WEGSCHEIDER), A., ii, 282.
chloride, colloidal (PAAL; EPHRAIM), A., ii, 351.
organosols and gels of (PAAL and KÜHN), A., ii, 749.
toxicity of, and its prevention by other salts (OSTERHOUT), A., ii, 383.
excretion of, during phloridzin diuresis (BIBERFELD), A., ii, 564.
estimation of, in yolk of egg (L. and J. GADAI), A., ii, 631.
chromates (SCHREINEMAKERS), A., ii, 287.
fluoride, action of, on garden plants (Asō), A., ii, 889.
hydroxide, explosion of a Küster apparatus for the preparation of (HARPF and FLEISSNER; KÜSTER), A., ii, 850.
hypobromite, action of, on carbamide and on ammonium salts (CORRADI), A., ii, 505.

Sodium hyposulphite as a reducing agent (GRANDMOUGIN), A., i, 716, 967.
action of sodium thiosulphate on (BINZ and SONDAG), A., ii, 28.
application of, in gas analysis (FRANZEN), A., ii, 577.
mercuric iodides (DUBOIN), A., ii, 673.
permanganate, formation of (WHITE), A., ii, 725.
nitrate, refractive index of solutions of (MIERS and ISAAC), T., 413; P., 9.
presence of chlorate in (GRIMBERT), A., ii, 282.
as top-dressing for Japanese crops (Asō), A., ii, 890.
analysis of (BENSEMANN), A., ii, 125; (BECK), A., ii, 899.
used in preserving meat, analysis of (ANDOUARD), A., ii, 492.
nitrite, influence of, on metabolism (SURVEYOR), A., ii, 560.
peroxide, analysis of (LAESKER), A., ii, 804.
phosphates, influence of, on metabolism (DESGREZ and GUENDE), A., ii, 560.
estimation of the (AHLUM), A., ii, 393.
Disodium orthophosphate, action of silver nitrate on, in dilute solution (LANG and KAUFMANN), A., ii, 162.
Sodium silicate as manure for wheat and barley (VOELCKER), A., ii, 883.
iron silicate, $\text{Na}_2\text{Fe}_2\text{Si}_4\text{O}_{12}$ (WEYBERG), A., ii, 91.
sulphate in secondary fumaroles of Mt. Pelée (LACROIX), A., ii, 769.
and potassium sulphate, mutual relationship of (VAN'T HOFF and BARSCHALL), A., ii, 666.
molybdate and tungstate, mixed crystals of anhydrous (BOEKE), A., ii, 750.
double salt of, with antimony sulphate (METZL), A., ii, 174.
estimation of, in magnesium sulphate (MOSSLER), A., ii, 395.
persulphate, electrolytic production of (CONSORTIUM FÜR ELEKTROCHEMISCHE INDUSTRIE & E. MÜLLER), A., ii, 749.
hydrogen sulphates, two (D'ANS), A., ii, 351.
sulphide, reaction of, with iron salts (DE KONINCK), A., ii, 397.
sulphite, estimation of, in foods (HOLLEY), A., ii, 800.
di- and tetra-thionates, action of potassium cyanide on (GUTMANN), A., i, 149.

- Sodium thiosulphate, hydrates of** (YOUNG and BURKE), A., ii, 281.
 assay of (HÜBENER), A., ii, 196.
 uranate, preparation of (OHLY), A., ii, 762.
- Sodium**, estimation of, in hydrochloric acid soil extracts (NEUBAUER), A., ii, 52.
- Sodium light**, apparatus for obtaining a powerful (PERKIN), T., 617; P., 100.
- β-Sodoxynaphthoic acid** (TIJMSTRA and EGGINCK), A., i, 179.
- Soil extracts**, method of determining "black alkali" in (SKINNER), A., ii, 251.
- Soils**, some new properties of (KÖNIG, HASENBÄUMER, and COPPENRATH), A., ii, 303.
 effect of plant growth and of manures on the retention of bases by (HALL and MILLER), A., ii, 119.
 investigation of the causes of the retention of soluble substances by (BRIGGS), A., ii, 13.
 relatively deficient in magnesia, improvement of (NAKAMURA), A., ii, 389; (MAKI and TANAKA), A., ii, 892.
 absorption of alkali carbonates by the mineral constituents of (DUMONT; MAQUENNE), A., ii, 249.
 chemical and physical action of brine on (HISSINK), A., ii, 701.
 action of carbon disulphide on (HEINZE), A., ii, 486.
 development and distribution of nitrates and total water-soluble salts in field (KING, JEFFERY, and WHITSON), A., ii, 46.
 manured with sodium nitrate, loss of nitrogen in (STOKLASA, JELÍNEK, and ERNEST), A., ii, 303.
 absorption of phosphates by (SCHREINER and FAILYER), A., ii, 485.
 behaviour of "soluble" phosphoric acid and its movements in (HOFFMEISTER), A., ii, 120.
 absorption of potassium by (SCHREINER and FAILYER), A., ii, 575.
 relation of sodium to potassium in, and solution cultures (BREAZEALE), A., ii, 891.
 nitrogen decompositions in (LÖHNIS), A., ii, 46.
 availability of phosphoric acid of (FRAPS), A., ii, 702.
 bacteriological investigation of (BUHLERT and FICKENDEY), A., ii, 476.
 microbiology of (HEINZE), A., ii, 625.
 effect of the sterilisation of, on plants (SCHULZE), A., ii, 796.
- Soils**, demonstration of the amount of clay in (EMMERLING and SIEDEN), A., ii, 494.
 phospho-humic compounds of (DUMONT), A., ii, 626.
 cacao, of S. Thomé and the Gold Coast Colony, agricultural value of (HÉBERT), A., ii, 889.
 tobacco, from Deli, Sumatra, analyses of (MAYER), A., ii, 249.
 from the Experimental Fields, bacteriological and chemical studies of (WOHLTMANN, FISCHER, and SCHNEIDER), A., ii, 119.
 from French Guinea, composition of (HÉBERT), A., ii, 889.
 over-limed, regeneration of (MAKI and TANAKA), A., ii, 892.
 marsh (SCHUCHT), A., ii, 46.
 Oregon Beaverdams, chemical study of some (BRADLEY), A., ii, 249.
 analysis of, note on (WEIBULL), A., ii, 712.
 determination of available plant food in, by the use of weak acid solvents (HALL and AMOS), T., 205; P., 11.
 estimation of calcium, magnesium, phosphoric acid, potassium, and sodium in hydrochloric acid extracts of (NEUBAUER), A., ii, 52; (HISSINK), A., ii, 396.
 estimation of carbon in (HALL, MILLER, and MARMU), T., 595; P., 103.
 estimation of nitric acid in (BUHLERT and FICKENDEY), A., ii, 125.
- Solanin**, amount of, in potatoes (WINTGEN), A., ii, 701.
 from *Solanum sodomaeum* (ODDO and COLOMBANO), A., i, 527, 980; (SOLDAINI), A., i, 527.
 formula and properties of (ROMEO), A., i, 300.
 sugars of (VOTOČEK and VONDRAČEK), A., i, 378.
 inhibition of the toxic influence of, by carbon dioxide (HAUSMANN and WOZASEK), A., ii, 789.
- Solanum sodomaeum**, products from (ODDO and COLOMBANO), A., i, 527, 980; (SOLDAINI), A., i, 527.
- Solar eclipses**, total, of 1900, 1901, and 1905, determinations of wave-length from spectra obtained at the (DYSON), A., ii, 713.
- Solid solutions**. See Solutions.
 substances, vaporisation of, at the ordinary temperature (ZENGELIS), A., ii, 831.
 vacuum distilling apparatus for (HAEHN), A., ii, 841.

- Solidification** of inorganic salts and salt mixtures (PLATO), A., ii, 521.
- Solids**, apparatus for measuring the solubility of, in liquids (VEIMARN), A., ii, 838.
- Solubility**, influence of one substance on the, of another (LEVIN), A., ii, 527; (RIEDEL), A., ii, 656; (DAWSON), A., ii, 730.
- absorption, relation of, to surface tension (CHRISTOFF), A., ii, 525.
- abnormal increase of, with organic substances (STRÖMHLIM), A., ii, 75.
- of organic acids, bases, and carbohydrates in pyridine and other solvents (HOLTY), A., ii, 61.
- of the alkaline-earth bromates, chlorates, and iodates (TRAUTZ and ANSCHÜTZ), A., ii, 656.
- absorption coefficients of gases and vapours, connection between the, and their critical temperatures, and the viscosity of the solvent medium (TATE), A., ii, 838.
- absorption of gases by liquids, regularity in the (WINKLER), A., ii, 342.
- of the halogen derivatives of hydrocarbons in water (REX), A., ii, 342.
- of salt mixtures at temperatures considerably above the boiling points of their saturated solutions (THIELE and CALBERLA), A., ii, 604.
- of solids in liquids, apparatus for measuring the (VEIMARN), A., ii, 838.
- of sparingly soluble substances (BÖTTGER), A., ii, 656.
- Solubility curves** (TREVOR), A., ii, 341.
- anomalous character of, and the relation of this to the formation of hydrates in solution (VAN LAAR), A., ii, 275.
- Solution state** (DREAPER), A., ii, 13.
- Solutions**, contributions to the theory of (HOLMES), T., 1774; P., 272.
- general equations of the theory of (TREVOR), A., ii, 526.
- critical pressures of (CENTNERSZWER and PAKALNEET), A., ii, 341.
- critical temperatures of (CENTNERSZWER and ZOPPI), A., ii, 272.
- origin of the formation of layers in, observed by A. Sinding-Larsen (CHRISTIANSEN), A., ii, 74.
- in liquid iodine, electrical conductivity of (LEWIS and WHEELER), A., ii, 650.
- alcoholic, osmotic pressures of (BARLOW), A., ii, 273.
- Solutions**, aqueous, ionic size in relation to the physical properties of (BOUSFIELD), A., ii, 428.
- boiling points of (JOHNSTON), A., ii, 9.
- osmotic pressure of (BARLOW), A., ii, 149.
- surface tension of (ZEMPLÉN), A., ii, 728.
- saturated, spontaneous crystallisation of (HARTLEY), P., 60.
- the attractive force of crystals for like molecules in (SONSTADT), T., 339.
- in binary systems in which a compound occurs, boiling points of (ROOZEBOOM), A., ii, 217.
- solid (WALLERANT), A., ii, 151; (DE BOISBAUDRAN), A., ii, 152.
- supersaturated, influence of light on the crystallisation of (TRAUTZ and ANSCHÜTZ), A., ii, 411.
- Solvent** and solute, reciprocal behaviour of (SCHILLER), A., ii, 220.
- molecular weight of the, in binary mixtures (DRUCKER), A., ii, 74.
- combination of, with the ions (MORGAN and KANOLT), A., ii, 420.
- influence of the, on the stability of the dissolved molecules (BRILLOUIN), A., ii, 262.
- liquid carbon dioxide as (BÜCHNER), A., ii, 274.
- iodine as (TIMMERMANS), A., ii, 429.
- liquid methylamine as (GRIBBS), A., i, 933.
- Solvents**, index of refraction of substances dissolved in non-aqueous (CHÈNEVEAU), A., ii, 509.
- boiling point measurements of (WALDEN), A., ii, 336.
- viscosity of, in relation to conductivity (WALDEN), A., ii, 335.
- organic, and their dissociative power (WALDEN), A., ii, 149, 335, 336, 527.
- Somnoform** and ethyl bromide, chloride, and iodide, physiological action of (WEBSTER), A., ii, 566.
- Sorbic acid**, α -cyano-, and its barium salt and bromo-derivative, and reactions (HAERDTL), A., i, 62.
- Sorbonitrile** (HAERDTL), A., i, 62.
- Soy bean**, vegetable cheese from the proteid of the (KATAYAMA), A., ii, 889.
- Soy bean milk** (KATAYAMA), A., ii, 889.
- Sparteine alkyl haloids** (SCHOLTZ), A., i, 379.
- Specific heat**. See under Thermochemistry.

- Specific** inductive capacity. See Dielectric constants under Electrochemistry.
- rotation. See under Photochemistry.
- Spectra** and **Spectroscopy**. See under Photochemistry.
- Spices**, researches on the carbohydrates in (HANUS and BIEN), A., ii, 883.
- Spiegelreisen**, estimation of manganese in (KIETREIBER), A., ii, 494.
- Spinach**, quantity of iron in (SERGER), A., ii, 574.
- lime factor for (NAMIKAWA), A., ii, 892.
- stimulating action of potassium iodide on (UCHIYAMA), A., ii, 388.
- Spinel**, compounds allied to (WEYBERG), A., ii, 865.
- Spirits**, estimation of higher alcohols in (SCHIDROWITZ and KAYE), A., ii, 584.
- Spleen**, the carbohydrate group of the nucleo-protein of the (LEVENE and MANDEL), A., i, 468.
- Spongins**, cleavage products of, with acids (ABDERHALDEN and STRAUSS), A., i, 547.
- Spring water**. See under Water.
- Squill**, straphanthus, and digitalis, pharmacological action of, on the heart (HAYNES), A., ii, 243.
- Stability**, relation of, to electrochemical efficiency in hypochlorite production (DIGBY), A., ii, 265.
- limit of, of additive compounds, in the solid state and the divergence of the same from Kopp and Neumann's law (KREMANN and v. HOFMANN), A., ii, 267.
- Staffelite**, crystallised (SCHWANTKE), A., ii, 35.
- Standard solutions**. See under Analysis, volumetric.
- Stannic compounds**. See under Tin.
- Star aniseed oil**, new method of extracting (EBERHARDT), A., ii, 246.
- Starch**, acidic properties of (DEMOUSSY), A., i, 401.
- behaviour of, on hydrolysis with moderately concentrated sulphuric acid (TOLLENS), A., i, 560.
- inversion of, by platinum black (NEILSON), A., i, 235.
- influence of some mineral matters on the liquefaction of (WOLFF and FERNBACH), A., i, 803.
- liquefying and saccharifying actions on (PETIT), A., i, 67.
- action of acetic anhydride saturated with hydrogen chloride on (SKRAUP), GEINSPERGER, V., KNAFFL-LENZ, MENTER, and SIRK), A., i, 67.
- Starch**, action of amylase on (MAQUENNE and ROUX), A., i, 327, 547; (FERNBACH), A., i, 327; (FERNBACH and WOLFF), A., i, 484.
- action of mineral compounds on (WOLFF), A., i, 66.
- microscopic examination of (COLLIN), A., ii, 905.
- estimation of, polarimetrically (EWERS), A., ii, 57.
- estimation of added, in chocolates (ROBIN), A., ii, 499; (PELLET), A., ii, 586.
- wheat, detection of rice starch in (COLLIN), A., ii, 905.
- Starches**, natural, retrogression and composition of (ROUX), A., i, 235.
- estimation of insoluble amyloses in (WOLFF), A., ii, 500.
- Starch grains** and **powder**, liquefaction of (BOUDIN), A., i, 933.
- Starch paste**, mechanism of the influence of acids, bases, and salts in the liquefaction of (FERNBACH and WOLFF), A., i, 804; (BOUDIN), A., i, 933.
- Starchy substances** studied by the aid of our knowledge of the colloidal state (MALFITANO), A., i, 804.
- Starfish eggs**. See Eggs.
- Stassfurt salts**, temperatures of deposition of (VAN'T HOFF), A., ii, 36.
- Steam**, superheated, specific heat of (HOLBORN and HENNING), A., ii, 147.
- Steam generator** and superheater, automatic (THIELE), A., ii, 78.
- rapid (REISER), A., ii, 531.
- Steapsin**, pancreas, and the velocity of fat hydrolysis produced by enzymes (KANITZ), A., i, 328.
- Stearylphenylthiocarbamide** (HAWTHORNE), T., 560; P., 86.
- Steel**. See under Iron.
- Stereochemical influences**, reciprocal (MEYER), A., i, 107.
- Stereoisomerides**, unsaturated, reaction of, with organic magnesium compounds (KOHLER), A., i, 753.
- Stibines**. See under Antimony organic compounds.
- 2-Stilbazole**, 4-amino-, and its acetyl derivative and salts and **4-Stilbazole**, *p*-amino- and *p*-nitro-, and their salts (BAUMERT), A., i, 909.
- Stilbazole-*p*-azo- β -naphthols**, 2- and 4-, and their salts and **6-sulphonic acids**, sodium salts (BAUMERT), A., i, 910.
- Stilbazole-*p*-azoresorcinols**, 2- and 4- (BAUMERT), A., i, 910.

- Stilbene** (*s-diphenylethylene*), 2-amino-, and its acetyl derivative, 2-nitro-, 4-nitro-2-amino- and 2-nitro-4-amino-, and their diazo-derivatives, and 2:4-dinitro-, and its polymerisation (SACHS and HILPERT), A., i, 241.
- p-hydroxy-, and its salts and bromo-derivatives and their acetyl compounds (ZINCKE and GEIBEL), A., i, 739.
- 4:4'-dihydroxy-, oxidation of (WILLSTÄTTER and BENZI), A., i, 997.
- nitro-derivatives (PFEIFFER and MONATH), A., i, 413.
- s-Stilbenedimethylamine** and its salts, dinitrosoamine, and diacyl derivatives (FISCHER and RÖMER), A., i, 542.
- Stilbene group**, colouring matters of the (GREEN and CROSLAND), T., 1602; P., 256.
- Stibiotantalite** (PENFIELD and FORD), A., ii, 681.
- Stilbite** from Fonte del Prete (D'ACHIARDI), A., ii, 555.
- from Gellivare, Sweden (BYGDÉN), A., ii, 38.
- Stimulation**, nature of chemical and electrical (SUTHERLAND), A., ii, 871.
- Stoichiometrical laws**, deduction of the (BENEDICKS), A., ii, 530; (BAUR), A., ii, 661.
- Stomach**, movements of (CANNON and MURPHY), A., ii, 180.
- human fasting, concentration of hydrogen ions in the contents of the (TANGL), A., ii, 871.
- See also Digestion.
- Stomach juices**, behaviour of different polypeptides towards (FISCHER and ABDERHALDEN), A., ii, 99.
- Stratified structures** (LIESEGANG), A., ii, 273.
- Straw manure**. See under Manure.
- Streptococci** in milk (SAVAGE), A., ii, 298.
- Strontium**, diffusion of, in sedimentary rocks (COLLOT), A., ii, 39.
- atomic weight of (RICHARDS), A., ii, 26.
- preparation and properties of (GUNTZ and ROEDERER), A., ii, 229.
- Strontium amalgams** (GUNTZ and ROEDERER), A., ii, 668.
- Strontium-ammonium** (ROEDERER), A., ii, 752.
- Strontium** borates and bromo- and chloro-borates (OUVRARD), A., ii, 164.
- chloride, analysis of (RICHARDS), A., ii, 26.
- Strontium mercuric iodides** (DUBOIN), A., ii, 286.
- peroxide, commercial (v. FOREGGER and PHILIPP), A., ii, 352.
- pyrophosphates (PAHL), A., ii, 87.
- aluminium sulphate-phosphate. See Harttite.
- Strontium carbonyl** (ROEDERER), A., ii, 752.
- Stryphanthus**, digitalis, and squill, pharmacological action of, on the heart (HAYNES), A., ii, 243.
- Strychnine**, pharmacology of a colloidal compound of (BROWN), A., ii, 188, 789.
- action of, on the spinal cord (HARRIS and MOODIE), A., ii, 475.
- behaviour of, in birds (MOLITORIS), A., ii, 111.
- toxicological investigation of (BAKUNIN and MAJONE), A., ii, 507.
- and brucine, separation of (REYNOLDS and SUTCLIFFE), A., ii, 638.
- Strychnine oxide** (MATTISON), A., i, 304.
- Strychnos Nux vomica**, oil of the seeds of (SCHROEDER), A., ii, 132.
- Styrene** (*cinnamene*), formation of, from cinnamic acid, by moulds (OLIVERO), A., ii, 623.
- 2-Styreneazobenzene**, 5'-nitro-4-amino- (SACHS and HILPERT), A., i, 242.
- Styrylacrylic acid** (*cinnamylideneacetic acid*) and its transformation products (MICHAEL and GARNER), A., i, 274.
- 2-Styryl-5-methylpyrazine** and *o*-hydroxy- and *p*-nitro- (FRANKE), A., i, 47.
- 2-Styryl-6-methylquinoline** (*6-methyl-2-irazole*) and *p*-hydroxy-*m*-nitro-, and hexahydro-derivatives and their additive salts (GASDA), A., i, 41.
- 2-Styryl-8-methylquinoline** and *o*-, *m*-, and *p*-nitro-, and their additive salts (HOFFMANN), A., i, 40.
- 2-Styrylquinoline** (*benzylidenequinoline*; *2-irazole*), derivatives of (GASDA), A., i, 41.
- and its *p*-amino-, nitro-, and dihydroxy-derivatives and the diacetyle compound of the dihydroxy-derivative, and their dyeing properties (NOELTING and WITTE), A., i, 886.
- 5-, 6-, and 8-nitro-, and their additive salts (SCHMIDT), A., i, 39.
- Suberanealdehyde** (WALLACH and KÖHLER), A., i, 818.
- Suberanealdehyde** and its oxime and semicarbazone and **Suberaneacarboxylic acid**, hydroxy- (WALLACH), A., i, 371.
- Suberenealdehyde** and its semicarbazone (WALLACH), A., i, 372.
- Submaxillary glands**. See under Glands.

Substance, $C_4H_6O_2N_2$, from histidine (FRÄNKEL), A., i, 547.
 $C_4H_8O_2N_6$ and $C_4H_{10}O_3N_6$, from the oxidation of uric acid (DENICKE), A., i, 939.
 $C_4H_8O_3Cl_2$, from dichloromethyl oxide and trioxymethylene (DESCUDÉ), A., i, 559.
 $C_5H_{10}O_2NCl$ (or $C_5H_{12}O_2NCl$), from the oxidation of nitrosopiperidine in acetone solution (VORLÄNDER and WALLIS), A., i, 765.
 $C_6H_8O_2(?)$, from the action of potassium hydroxide on α -cyanosorbic acid (HAERDTL), A., i, 62.
 $C_6H_{10}O$, from the decomposition of *N*-dimethylbistrimethylenedimine dimethochloride (KNORR and ROTH), A., i, 457.
 $C_7H_{13}N$, from the action of ammonia on hexahydrobenzaldehyde (WALLACH and ISAAC), A., i, 564.
 $C_7H_2O_2Br_4$, and its aniline and bromine compounds, from pentabromotolu- ψ -quinol (ZINCKE and BÖTTCHER), A., i, 167.
 $C_7H_6O_6N_3$, from the nitration of diacetyl-*p*-aminophenol (REVERDIN and BUCKY), A., i, 749.
 $C_7H_{13}O_2N$, from ethyl acetoacetate and methylcarbamide (KIESSLING), A., i, 946.
 $C_8H_7O_4N_3$, from the ethyl ester of the acid, $C_4H_4O_3N_2$ (FRERICHS and HARTWIG), A., i, 164.
 $(C_8H_8O_2)x$, from benzaldehyde and ethyl tetrolate (FEIST), A., i, 332.
 C_9H_8S , from acetophenone, formaldehyde and alkali sulphides (COMPAGNIE MORANA), A., i, 24.
 $C_9H_{10}O$, from methylephedrine and methyl- ψ -ephedrine methyl hydroxides (SCHMIDT and EMDE), A., i, 978.
 $C_9H_{12}O_2$, from the action of ethyl iodide on the disodium derivative of diacetylacetone (BAIN), T., 1228; P., 196.
 $C_9H_{14}O_2$, from the reduction of acraldehyde (VAN ROMBURGH and VAN DORSEN), A., i, 141.
 $C_9H_{16}O$, from the acid, $C_{10}H_{18}O_3$ (SEMMLER and MCKENZIE), A., i, 374.
 $C_9H_{18}O_2$, from di-isobutyryl and magnesium methyl iodide (BOUVEAULT and LOCQUIN), A., i, 803.
 $C_{10}H_{12}OCl_2$, and its isomeride, from the action of magnesium methyl iodide on 1-keto-2-methyl-2-dichloromethyl-1:2-dihydrobenzene (AUWERS), A., i, 947.

Substance, $C_{10}H_{14}O$, from β -terpineol (WALLACH and SCHMITZ), A., i, 372.
 $C_{10}H_{14}O_2$, from the action of propyl iodide on the disodium derivative of diacetylacetone (BAIN), T., 1234; P., 196.
 $C_{10}H_{15}Cl$, from the action of hypochlorous acid on camphene (SLAWIŃSKI), A., i, 29.
 $C_{10}H_{16}O$, from the hydrolysis of camphene chlorohydrin (SLAWIŃSKI), A., i, 29.
 $C_{10}H_{11}ON$, from anilinoisobutyric acid (BUCHERER and GROLÉE), A., i, 349.
 $C_{10}H_{12}ON_2$, from *p*-aminophenol and acetonecyanohydrin (BUCHERER and GROLÉE), A., i, 349.
 $C_{10}H_{14}OCl_2$, and its isomeride, from the action of magnesium ethyl iodide on 1-keto-2-methyl-2-dichloromethyl-1:2-dihydrobenzene (AUWERS), A., i, 947.
 $C_{10}H_{18}O_3S$, from the reduction of camphane-hydrate-sulphonic chloride (BORSCHE and LANGE), A., i, 680.
 $C_{10}H_{19}O_6N_5$, and $C_{11}H_{18}O_4H_5$, from egg-albumin (HUGOUNENQ and GALIMARD), A., i, 776.
 $C_{11}H_8O_8$, from the decomposition of methyl malonate chloride (LEUCHS), A., i, 796.
 $C_{11}H_{12}O_3$, and its dibromide, from the oil of *Piper Volkensii* (SCHMIDT and WEILINGER), A., i, 299.
 $C_{11}H_{10}O_3N_2$, from ethylenediamine and phthalonic acid (MANUELLI and MASELLI), A., i, 308.
 $C_{11}H_{14}ON_2$, from *p*-anisidine and acetonecyanohydrin (BUCHERER and GROLÉE), A., i, 350.
 $C_{11}H_{18}ON_2$, and $C_{12}H_7O_3N_3$, from pinene (LEACH), P., 137.
 $C_{12}H_{10}O_2$, from acetophenone and ethyl tetrolate (FEIST), A., i, 332.
 $C_{12}H_6O_4N_3$, from 2-nitroresorcinol and diazobenzene chloride (KAUFFMANN and DE PAY), A., i, 169.
 $C_{12}H_{11}O_2N$, and its acetyl derivative, from β -naphthol, formaldehyde, and hydroxylamine (BETTI), A., i, 653.
 $C_{12}H_{17}O_3N_3$, from pinene nitrosochloride and alcoholic potassium cyanate, and its reduction (LEACH), P., 304.
 $C_{13}H_{10}S$, from benzophenone, formaldehyde, and alkali sulphides (COMPAGNIE MORANA), A., i, 24.
 $C_{13}H_{12}O_8$, from the decomposition of ethyl malonate chloride (LEUCHS), A., i, 796.

- Substance**, $C_{13}H_{14}O_4$, from tetramethyl-phloroglucinolaldehyde and acetic anhydride (HERZIG, WENZEL, and RONA), A., i, 94.
- $C_{13}H_{20}S$, from acetone, citral, and alkali sulphides (COMPAGNIE MORANA), A., i, 24.
- $C_{13}H_9O_4N$, from nitrofluorenyl acetate (SCHMIDT and BAUER), A., i, 26.
- $C_{13}H_{11}O_2N$, from xanthydrol and hydroxylamine (FOSSE), A., i, 975.
- $C_{13}H_{16}O_3N_2$, from ethyl acetoacetate and phenylcarbamide (KRIESSLING), A., i, 946.
- $C_{13}H_{18}O_4N_4$, from *p*-aminobenzoic acid (BRESLER, FRIEDEMANN, and MAI), A., i, 322.
- $C_{13}H_{20}O_2N_4$, from propaldoxime and *p*-diazotoluene hydroxide (BRESLER, FRIEDEMANN, and MAI), A., i, 322.
- $C_{14}H_6O_{10}$, and its hexa-acetyl derivative, from the oxidation of ellagic or flave-lactic acid (PERKIN), P., 114.
- $C_{14}H_8N_4$, from the action of hydrochloric acid on 1:5-disulphohydroazuoanthraquinone (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 905.
- $C_{14}H_{10}O_7$, from xanthophanic acid ethers and sulphuric acid (LIEBERMANN), A., i, 557.
- $C_{14}H_{16}O_4$, and $C_{16}H_{18}O_3$, and their benzoyl derivatives, from guiaconic acid (RICHTER), A., i, 443.
- $C_{14}H_{20}O$, from acetone and cyclopentadiene (THIELE and BALHORN), A., i, 639.
- $C_{14}H_{20}O_2$, from di-isobutyryl and magnesium phenyl bromide (BOUVE-AULT and LOCQUIN), A., i, 803.
- $C_{14}H_8O_2N_2$, from 4-hydrazino-1-hydroxyanthraquinone and aniline (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 904.
- $C_{14}H_{10}ON$, from dihydrazinoanthraquinone hydrochloride (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 904.
- $C_{14}H_{13}ON$ (two), and their urethanes, from 6-hydroxy-3-methylbenzaldehyde and aniline (ANSELMINO), A., i, 13.
- $C_{14}H_{13}O_2N_3$, from xanthydrol and semicarbazide (FOSSE), A., i, 975.
- $C_{14}H_{16}ON_2$, from ethyl 1-methyl-3-cyclohexanone-4-carboxylate and phenylhydrazine (KÖRTZ and HESSE), A., i, 88.
- $C_{14}H_{11}ON_3S$, and its isomeride and its acetyl derivative, from the oxidation of phenylthiocarbamide (DOST), A., i, 315.
- Substance**, $C_{15}H_8O_2N_2$, from the oxidation of indigotin, and its reduction (PERKIN), P., 198.
- $C_{15}H_{11}O_2N$, from phthalic anhydride and 2:4-lutidine (LANGER), A., i, 38.
- $C_{15}H_{12}O_4N_2$, from *m*-nitro-*p*-toluidine and phthalonic acid (MANUELLI and MASELLI), A., i, 309.
- $C_{15}H_{17}O_3N_3$, from ethyl benzoylace-tonylacetate and semicarbazide (BORSCHE and FELS), A., i, 510.
- $C_{15}H_{24}O_2N_4$, from ψ -cumidine (BRESLER, FRIEDEMANN, and MAI), A., i, 322.
- $C_{15}H_{13}ON_2Cl$, and its additive salts, from the action of *o*-nitrobenzaldehyde on dimethylaniline in presence of hydrochloric acid (ZINCKE and PRENNITZEL), A., i, 110.
- $C_{16}H_{14}O$, and its methyl ether, from the dehydration of 9:10-dihydroxy-9:10-dimethylanthracene (GUYOT and STAEHING), A., i, 17.
- $C_{16}H_{11}O_3N$, from nitrosophenol, α -naphthol, and alkali (A. and H. V. EULER), A., i, 370.
- $C_{16}H_{15}ON_3S$, and its isomeride and its compound with phenylcarbamide, from the oxidation of *p*-tolylthiocarbamide (DOST), A., i, 315.
- $C_{17}H_{18}O$, from hydrindene (GATTERMANN), A., i, 592.
- $C_{17}H_{13}O_5N$, from the ethyl ester of the acid, $C_4H_4O_3N_2$, and benzyl alcohol (FRERICHS and HARTWIG), A., i, 164.
- $C_{17}H_{14}ON_2$, from the oxidation of α -dibenzylideneacetonehydroxylamine-oxime (MINUNNI and CIUSA), A., i, 95.
- $C_{17}H_{18}O_3N_2$, from the reduction of disalicylideneacetonehydroxylamine-oxime (MINUNNI and CIUSA), A., i, 96.
- $C_{17}H_{19}O_7N_3$, from ethyl tetrolate, ethyl oxalate, and *p*-nitrophenylhydrazine (FEIST), A., i, 332.
- $C_{18}H_{18}O_5$, from glaucophanic acid methyl ether (LIEBERMANN), A., ii, 556.
- $C_{18}H_{13}ON$, from 7-hydroxy-1:2-phenonaphthacridine (BAEZNER and GARDIOL), A., i, 887.
- $C_{18}H_{21}O_3N_2Br$, from the action of *p*-bromophenylhydrazine on camphoroxalic acid (TINGLE and ROBINSON), A., i, 904.
- $C_{19}H_{20}O_5$, and its dibenzoyl derivative, from guaiacum resin (RICHTER), A., i, 442.
- $C_{19}H_{17}O_2N$, from formaldehyde and 2:8-dimethylquinoline (HOFFMANN), A., i, 41.

- Substance**, $C_{19}H_{18}O_2Cl_4$, from the benzene solution of dianisylidene and phosphorus pentachloride (STRAUS and ECKER), A., i, 861.
- $C_{19}H_{20}O_3N_2$, from diphenylcarbamide, ethyl acetoacetate, and ether (KIESSLING), A., i, 946.
- $C_{19}H_{20}O_3N_3$, from xanthophanic acid ethyl ether and semicarbazide hydrochloride (LIEBERMANN), A., i, 557.
- $C_{20}H_{11}O_3$, obtained in the preparation of 2:3-dihydroxynaphthalene (NEIL), A., i, 356.
- $C_{20}H_{18}O$, from the hydrolysis of the substance, $C_{21}H_{22}O_3$ (VORLÄNDER and STAUDINGER), A., i, 366.
- $C_{20}H_{22}O_5$, and its bromophenylhydrazine, from xanthophanic acid ethyl ether (LIEBERMANN), A., i, 556.
- $C_{21}H_{22}O_3$, from 4:7-dimethylcoumarin (FRIES and KLOSTERMANN), A., i, 276.
- $C_{21}H_{28}O_6$, and its methyl ether and anhydride, from 6-hydroxypentaketo-octamethyltetrahydrophenylphenylenedienemethane (HERZIG, WENZEL, and REISMANN), A., i, 95.
- $C_{21}H_{16}O_2N_2$, from benzaldehydephenylhydrazone and ethyl acetoacetate (MINUNNI), A., i, 114.
- $C_{21}H_{20}ON_2$, from ethyl 1-methyl-3-cyclohexanone-4-oxalate and aniline (KÖTZ and HESSE), A., i, 88.
- $C_{22}H_{26}O_5$, from dimethylphloroglucinol-aldehyde, potassium hydroxide, and methyl iodide (HERZIG, WENZEL, and REISMANN), A., i, 95.
- $C_{22}H_{17}O_2N$, from triphenylcarbinol and cyanoacetic acid (FOSSE), A., i, 976.
- $C_{23}H_{22}O_3$, from cinnanylideneacetophenone and ethyl acetoacetate (VORLÄNDER and STAUDINGER), A., i, 366.
- $C_{23}H_{26}O_2$, from the dehydration of diphenylcamphorylcarbinol (HALLE and BAUER), A., i, 441.
- $C_{24}H_{22}O$, and its oxime and bromo-derivative, from the action of glacial acetic and sulphuric acids on β -benzyl- β -styrylpropiophenone (BAUER and BREIT), A., i, 517.
- $C_{24}H_{18}ON_2$, from the reduction of *o*-nitrobenzyl chloride in presence of 2:7-dihydroxynaphthalene (BAEZNER, GUEORGUIEFF, and GARDIOL), A., i, 902.
- $C_{24}H_{20}O_2N_2$, from diphenylamine and hydrogen peroxide (USCHAKOFF), A., i, 159.
- Substance**, $C_{24}H_{21}OBr$, from the action of glacial acetic and sulphuric acids on β -benzyl- β -styryl-*p*-bromopropiophenone (BAUER and BREIT), A., i, 518.
- $C_{24}H_{26}O_5N_2$, from the reduction of xanthoxal-m-xylidil (RUHEMANN), T., 1852; P., 284.
- $C_{24}H_{30}O_5N_2$, and $C_{24}H_{30}O_6N_2$, and its isomeride, from biscamphoformene-aminecarboxylic acid (TINGLE and ROBINSON), A., i, 903.
- $C_{25}H_{22}O_2$, from the action of glacial acetic and sulphuric acids on β -benzyl- β -styrylpropiophenone (BAUER and BREIT), A., i, 518.
- $C_{26}H_{14}O_3N_2$, from 4-nitro-9-hydroxyfluorene-9-carboxylic acid (SCHMIDT and BAUER), A., i, 26.
- $C_{26}H_{26}O_2N_4$, from ethyl benzoylacetylacetate and phenylhydrazine (BORSCHE and FELS), A., i, 510.
- $C_{28}H_{14}O_6$, from erythrohydroxyanthraquinone (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 678.
- $C_{28}H_{16}O_3$, from diphenyleneketen (STAUDINGER), A., i, 861.
- $C_{30}H_{20}O_4$, from 2:3-dimethoxyanthracene (LAGODZINSKI), A., i, 82.
- $C_{30}H_{22}N_4S_5$, from dehydrodithiomalonanilide sulphide (REISSERT and MORÉ), A., i, 827.
- $C_{30}H_{24}O_4N_2$, from deoxybenzooincarboxylic acid and hydrazine (WÖLBING), A., i, 49.
- $C_{31}H_{28}O_3$, from methyl cinnamate and magnesium phenyl bromide (KOHLER and HERITAGE), A., i, 97.
- $C_{32}H_{51}N$ (or $C_{32}N_{53}N$), from cholestenone and piperidine (WINDAUS), A., i, 174.
- $C_{32}H_{29}O_5N_2$, from the condensation of anthranilic acid with ethyl benzoylacetate (v. NIEMENTOWSKI), A., i, 39.
- $C_{34}H_{38}O_7$, and its tribenzoyl derivative, from guaiaconic acid (RICHTER), A., i, 443.
- $C_{36}H_{30}O_3$, from phenyl cinnamate and magnesium phenyl bromide (KOHLER and HERITAGE), A., i, 96.
- $C_{42}H_{36}O_2$, from methyl cinnamate and magnesium phenyl bromide (KOHLER and HERITAGE), A., i, 97.
- $C_{60}H_{49}O_2N_6$, from diphenylamine and hydrogen peroxide (USCHAKOFF), A., i, 159.
- Substitution**, influence of, in the components on the equilibrium of binary solutions (KREMANN and RODINIS), A., ii, 268.

- Substitution**, influence of the added substance in aromatic nuclei on (HOLLEMAN), A., i, 412.
 influence of catalysts on, in the aromatic nucleus (HOLDERMANN), A., i, 439.
 in aromatic compounds, explanation of the (HOLLEMAN), A., i, 818.
 in the benzene ring, problem of (HOLLEMAN), A., i, 489.
 influence of, on the formation of diazoamines and aminoazo-compounds (MORGAN and CLAYTON), T., 1054; P., 174.
 of the acetyl group by methoxyl under the action of diazomethane (HERZIG and TICHATSCHEK), A., i, 173.
 of the acetyl by the methyl group by means of diazomethane (HERZIG and TICHATSCHEK), A., i, 431.
 of ethoxyl-groups by radicles (TSCHITSCHIBABIN), A., i, 397.
 of methoxyl and ethoxyl groups by alkyl radicles (REFORMATSKY), A., i, 136.
 isomorphous, of the halogens in organic molecules (JAEGER), A., i, 273.
 of α -halogen atoms by alkyloxy-groups in aromatic compounds (WERNER, SCHORNDORFF, and CHOROWER), A., i, 180; (GOLDSCHMIEDT), A., i, 241.
 of negative groups by the hydroxyl group in ortho-substituted diazonium salts (NOELTING and BATTEGAY), A., i, 221.
Succinaldehyde derivatives (HARRIES and KRÜTZFELD), A., i, 930.
Succinanil and **Succinanic acid**, sulphur derivatives, and their transformation product (REISSERT and MORÉ), A., i, 827.
Succinic acid and its alkyl derivatives, method for the formation of (HIGSON and THORPE), T., 1455; P., 242.
 interaction of, with potassium dichromate (WERNER), P., 257.
Succinic acid, bromo-, velocity of conversion of, into fumaric acid (LOSSEN and MENDTHAL), A., i, 796.
 tribromo-, reactions of, and its aniline salt (LOSSEN and BERGAU), A., i, 796.
*iso***Succinic acid**. See Methylmalonic acid.
Succinic pinacone. See $\beta\epsilon$ -Dimethylhexane- $\beta\epsilon$ -diol.
Succinimide, electrolytic reduction of (TAFEL and EMMERT), A., ii, 216.
 acidic constants of (WOOD), T., 1836.
Succinimide, copper, cobalt, and nickel salts (LEY and WERNER), A., i, 561.
 nickel compounds with amines (TSCHUGAEFF), A., i, 814.
 silver derivative, electrical conductivity of (LEY and SCHAEFER), A., ii, 327.
Succinonitrile (ethylene cyanide), solvent and ionising properties of (BRUNI and MANUELLI), A., ii, 71.
Succintetramethylacetal and *dibromom* (HARRIES and KRÜTZFELD), A., i, 930.
Succinylidihydrazide and its diacetyl derivative and **Succinylbis-1-amino-2:5-dimethylpyrrole-3:4-dicarboxylic acid**, ethyl ester (BÜLOW and WEIDLICH), A., i, 982.
Sucrose (cane sugar, saccharose), presence of, in scammony root (REQUIER), A., ii, 45.
 osmotic pressure and depression of the freezing point of solutions of (MORSE, FRAZER, HOFFMANN, and KENNON), A., ii, 601.
 action of ammonium chloride on aqueous solutions of (STROHMER and FALLADA), A., i, 729.
 test for, in milk sugar (LEFFMANN), A., ii, 586; (GAWALOWSKI), A., ii, 811.
 and raffinose, optical estimation of mixtures of (PIERAERTS), A., ii, 811.
 estimation for, in beet (VIVIANI and GALEATI; PELLET), A., ii, 586.
Sugar, attempted synthesis of a, from carbon dioxide and water (LÖB), A., ii, 43, 324.
 formation of, from formaldehyde (H. and A. v. EULER), A., i, 142, 143; (LOEW), A., i, 401.
 osmotic pressure of solutions of, in mixtures of ethyl alcohol and water (BARLOW), T., 162.
 influence of the lead precipitate on the polarisation of (HORNE; H. and L. PELLET), A., ii, 400.
 fermentation of, without enzymes (SCHADE), A., i, 931.
 formation of formaldehyde during the heating of (TRILLAT), A., i, 234, 235, 401.
 burning, antiseptic properties of the gases produced by (TRILLAT), A., ii, 384.
 of the blood (LÉPINE and BOULUD), A., ii, 868.
 physico-chemical behaviour of, in blood (MAYER), A., i, 915.
 diabetic, estimation of, in urine by fermentation (GOLDMANN), A., ii, 586.

Sugar, can, be detected in urine by the fermentation test? (PFLÜGER), A., ii, 255.
 gravimetric analyses of (MUNSON and WALKER), A., ii, 634.
 analyses of, source of error in, owing to formation of ethers of dextrose (TALON), A., ii, 634.
 detection of, in cinnamon and mace (SFAETH), A., ii, 500.
 detection of, in urine, in presence of mercury (BECHHOLD), A., ii, 129; (WILLEN), A., ii, 810.
 the Pavly-Sahlí titration of, in urine (WAGNER), A., ii, 400.
 estimation of, gravimetrically, by means of Fehling's solution (KELHOFER), A., ii, 311.
 estimation of, in coloured and decolorised solutions (KICKTON), A., ii, 255.
 estimation of, in sugar beets (HÖGLUND), A., ii, 130.
 estimation of, in urine (LEVY), A., ii, 499.
 estimation of, in urine by a modification of Trommer's method (SIMROCK), A., ii, 810.
 See also Maple sugar.
Sugar-cane products, fermentation of (BROWNE), A., ii, 381.
Sugar group, estimation of, in proteids (KRUMMACHER), A., i, 391.
Sugar refineries, apparatus for testing saturation and boiler-gases in (SALOMON), A., ii, 580.
Sugars in chestnut flour (PALADINO), A., ii, 624.
 from the gum of *Cochlospermum Gossypium* (ROBINSON), T., 1505; P., 243.
 from the glucosides convallamarin, scammonin, and solanin (VOTOČEK and VONDRAČEK), A., i, 378.
 mutarotation of (TANRET), A., ii, 137.
 action of alkaline copper solutions on the rotation of (GROSSMANN), A., ii, 823.
 action of alkaline uranyl salts on the rotatory power of (GROSSMANN), A., ii, 61.
 action of secondary asymmetric hydrazines on (OFNER), A., i, 385.
 benzaldehyde derivatives of (ALBERDA VAN EKENSTEIN and BLANKSMA), A., i, 511.
 differentiation between the various, in urine (ESCHBAUM), A., ii, 585.
 alkylated, addition of alkyl haloids to (IRVINE and MOODIE), T., 1578; P., 204.

Sugars, raw, apparatus and methods for the investigation of (SCHREFELD), A., ii, 130.
 reducing, phenylosazones and phenylhydrazones of, thermochemistry of (LANDRIEU), A., ii, 270.
 new method for the estimation of (SIDERSKY), A., ii, 203.
 analysis of mixtures of (BROWNE), A., ii, 498.
 colour reactions of important (SCHOORL and VAN KALMTHOUT), A., ii, 204.
 estimation of (WOLFF), A., ii, 57.
 estimation of, copper solutions for (PELLET), A., ii, 585.
 estimation of, by means of the refractometer (TOLMAN and SMITH), A., ii, 904.
 estimation of, in chocolates (ROBIN), A., ii, 499; (PELLET), A., ii, 586.
 See also Carbohydrates.
***o*-Sulphaminebenzoic acid** and related compounds (BRADSHAW), A., i, 359.
Sulphates, estimation of. See Sulphuric acid under Sulphur.
 See also Metallic sulphides.
Sulphides. See under Sulphur.
Sulphine bases, aromatic (KEHRMANN and DUTTENHÖFER), A., i, 83, 949.
 derivatives, crystalline form of platinu-chlorides of (AMINOFF), A., i, 787.
Sulphineazo-dyes (GESELLSCHAFT FÜR CHEMISCHE INDUSTRIE IN BASEL), A., i, 323.
Sulpho-acids, aromatic, reduction of, to mercaptans by alkali hydrosulphides (SCHWALBE), A., i, 841.
Sulphoacetic acid and its salts (STILLICH), A., i, 552.
 action of aromatic amines on (STILLICH), A., i, 626.
Sulphobenzoic acids, *o*-, *m*-, and *p*-, and their nitro-derivatives (TAVERNE), A., i, 273.
***o*-Sulphobenzoic chlorides**, reactions of (COBB), A., i, 499.
Sulphonamates, aromatic, preparation of, by reduction of nitro-derivatives with sodium hyposulphite (SEYEWETZ and BLOCH), A., i, 490.
3-Sulphonaphthalic acid, 4:5-*dibromo*, and its barium salt (BARGELLINI), A., i, 184.
Sulphonic acids, behaviour of, on oxidation by fusion (GRAEBE and KRAFT), A., i, 256, 643.
Sulphonium bases, aromatic, formation of (SMILES and LE ROSSIGNOL), T., 696; P., 24, 87.
Sulphur, occurrence of, at Maybee, Michigan (KRAUS and HUNT), A., ii, 290.

Sulphur, crystals of, from the deposits of Miera and Valea-Sărei, Roumania (NICOLAU), A., ii, 618.
 from the Muschelkalk of Bruchsal, Baden (BEIERLE), A., ii, 368.
 cathodic behaviour of (LE BLANC), A., ii, 67 ; (MÜLLER and NOWAKOWSKI), A., ii, 145.
 specific heat of, between -188° and the ordinary temperature (FORCHI and NORDMEYER), A., ii, 521.
 vapour pressure of (MATTHIES), A., ii, 663.
 fused, surface tension of (ZICKENDRAHT), A., ii, 846.
 amorphous, and the influence of foreign substances on the behaviour of supercooled fused sulphur (SMITH and HOLMES), A., ii, 157.
 colloidal solutions of, preparation of (MÜLLER and NOWAKOWSKI), A., ii, 18.
 liquid, change of state of (HOFFMANN and ROTHE), A., ii, 279.
 equilibrium in the system, bismuth and (ATEN), A., ii, 11.
 action of, on copper (HEYN and BAUER), A., ii, 230.
 action of, on solutions of metallic salts (MANUELLI), A., ii, 607.
 action of, on potassium chromate and dichromate (BRÜCKNER), A., ii, 364.
 reaction of, with sulphates (BRÜCKNER), A., ii, 279.
 compounds of, with chlorine (ATEN), A., ii, 157.
 mixtures of, with lead (FRIEDRICH and LEROUX), A., ii, 355 ; (WEIDMANN), A., ii, 755.
Sulphuryl chloride, chlorination by means of (WOHL), A., i, 9.
Sulphur hydrate (SPRING), A., ii, 607.
 hydride. See Hydrogen sulphide.
Sulphides, action of, on nitroprussides (VIRGILI), A., i, 637.
 action of water vapour on, at a red heat (GAUTIER), A., ii, 548.
 phosphorescent (*Bologna phosphorus*) (VANINO), A., ii, 446.
 mixed, synthesis of (WUYTS), A., i, 257.
 estimation of sulphur in (v. NOSTITZ), A., ii, 798.
 See also Metallic sulphides.
Sulphur trioxide, formation of, by means of the Tesla discharge (FINLAY), A., ii, 261.
Sulphuric acid, lead chamber process (LUNGE and BERL), A., ii, 438.
 loss of nitre in the chamber process (INGLIS), A., ii, 226.

Sulphur :—
Sulphuric acid, behaviour of selenium in the manufacture of (LITTMANN), A., ii, 531.
 isolation of pure selenium from the residues of the lead chamber (KOCHE), A., ii, 609.
 of known strength, preparation of, by specific gravity determinations (ATEN), A., ii, 893.
 electrical conductivity of dilute solutions of (WHETHAM), A., ii, 69.
 dilute, formula for the vapour pressure of, at low temperatures (SCHEEL), A., ii, 422.
 action of, on copper (SLUITER), A., ii, 357 ; (VAN DEVENTER), A., ii, 854.
 action of hot, on platinum and iridium salts in presence of ammonium sulphate (DELAPINE), A., ii, 289.
 and nitric acid, removal of nitrous acid from concentrated (SILBERRAD and SMART), A., ii, 226.
 test for selenium in (LITTMANN), A., ii, 533.
 estimation of (FOLIN), A., ii, 123 ; (ACREE), A., ii, 897.
 rapid and exact method of estimating (TARUGI and BIANCHI), A., ii, 627.
 estimation of, iodometrically (SCHOLTZ), A., ii, 195 ; (TELLE), A., ii, 578.
 estimation of, volumetrically, with benzidine hydrochloride in presence of thiosulphates, sulphites, and sulphides (HUBER), A., ii, 48.
 and nitric acid, estimation of mixtures of (LUNGE and BERL), A., ii, 49.
 estimation of, in pyrites, by means of barium chloride in presence of interfering substances (LUNGE and STIERLIN), A., ii, 124.
 estimation of combined, in waters (RASCHIG), A., ii, 306 ; (BRUHN), A., ii, 800.
 estimation of free, in chalybeate waters (AHLUM), T., 470 ; P., 63.
 estimation of minute quantities of arsenic in (BISHOP), A., ii, 306.
Permonosulphuric acid, Caro's, constitution of (PRICE), T., 53.
Sulphurous acid and sulphites, harmfulness of as preservatives (JACOBI and WALBAUM), A., ii, 465 ; (WALBAUM), A., ii, 567.

Sulphur :—

Sulphurous acid, estimation of, in flesh (MENTZEL), A., ii, 305.
estimation of, in foods (SCHUMACHER and FEDER), A., ii, 124.

Hyposulphurous acid, estimation of, in hyposulphites and their compounds with formaldehyde (SEYEWETZ and BLOCH), A., ii, 578.

sulphate, thiosulphate, and sulphite, estimation of (BINZ and SONDAG), A., ii, 23.

Hyposulphites, constitution of (BUCHERER and SCHWALBE), A., ii, 741.

stable compounds of, with ketones (FARBEWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 400.

Thiosulphuric acid, compounds of, with aldehydes (SCHMIDT), A., i, 711.

Thiosulphates, electrolytic formation of (LEVI and VOGHERA), A., ii, 81, 348, 436.

Dithionic acid and its salts, analysis of (ASHLEY), A., ii, 801.

Sulphur, estimation of (FOLIN), A., ii, 123 ; (ACREE), A., ii, 897.

new apparatus for the estimation of (KLEINE), A., ii, 896.

and carbon, apparatus for the estimation of (WILHELMI), A., ii, 390.

estimation of, in coal gas (SCHUMACHER and FEDER), A., ii, 124 ; (HARDING ; JENKINS), A., ii, 391.

estimation of, in iron. See under Iron.

estimation of, in ores (SCHÄFER), A., ii, 394.

estimation of, in petroleum and bituminous minerals (GARRETT and LOMAX), A., ii, 123.

estimation of, in pyrites (RASCHIG), A., ii, 305 ; (GYZANDER), A., ii, 391 ; (DENNSTEDT and HASSSLER), A., ii, 896.

estimation of, in roasted zinciferous pyrites and similar ores (LUNGE and STIERLIN), A., ii, 195.

estimation of, in sulphides (v. NOSTITZ), A., ii, 798.

estimation of, in urine (DESMOULIERES), A., ii, 799.

Sulphuric and Sulphurous acids and Sulphuryl chloride. See under Sulphur.

Sulphuric acid contact process (WÖHLER, FOSS, and PLÜDDEMANN), A., ii, 846.

Sumach tannin (STRAUSS and GSCHWENDNER), A., i, 597.

Sun, temperature of the (MOISSAN), A., ii, 366.

Superphosphates. See under Phosphorus.

Suprarenal capsules in cases of nervous and other diseases (MOTT and HALLIBURTON), A., ii, 184.

glands, stable derivatives of the active base of (FARBEWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 691.

Surface tension, relation of, to absorption (CHRISTOFF), A., ii, 525.

of aqueous solutions (ZEMPLÉN), A., ii, 728.

Sylvite, crystals of, in blocks ejected during the recent eruption of Vesuvius (LACROIX), A., ii, 455.

hemihedrism of (MÜGGE), A., ii, 454.

Syngenite, formation of, at 83° (VAN'T HOFF, FARUP, and D'ANS), A., ii, 236.

Synthesis in sunlight (BENRATH), A., i, 535.

asymmetric, studies in (MCKENZIE and WREN), T., 688 ; P., 107.

application of Grignard's reaction for (MCKENZIE), T., 365 ; P., 61 ; (MCKENZIE and WREN), T., 688 ; P., 107.

Syringin, detection and estimation of, in the various organs of lilac and privet (VINTILESCO), A., ii, 701.

T.

Tachhydrite, formation of (VAN'T HOFF, FARUP, and D'ANS), A., ii, 236.

limit of existence of, at 83° (VAN'T HOFF and D'ANS), A., ii, 36.

Tadpoles, action of acids and alkalies and of acid, neutral, and alkaline salts on (ROAF), A., ii, 243.

alimentary canal of. See Alimentary canal.

Talc, estimation of (KRŽÍŽAN), A., ii, 582.

Tamarind pulp, composition of (REMEAUD), A., ii, 483.

Tannic acid, condensation of, with formaldehyde and acid amides (VOSWINKEL), A., i, 527.

bismuth derivatives (CHEMISCHE FABRIK VON HEYDEN), A., i, 974.

Tannin, sources of (SACK), A., ii, 386.

constitution of, and its hexa-acetyl derivative (DEKKER), A., i, 686, 974.

quebracho (STRAUSS and GSCHWENDNER), A., i, 596 ; (NIERENSTEIN), A., i, 761.

- Tannin analysis**, collaborative work on (SMALL), A., ii, 404.
estimation of (BOUDET), A., ii, 911.
estimation of, by means of strychnine (TROTMAN and HACKFORD), A., ii, 134.
estimation of, in wine (KRÁMSKY), A., ii, 134.
Tannin, iodo- (VIGNERON), A., i, 597.
Tannins (STRAUSS and GSCHWENDNER), A., i, 596; (THOMS), A., i, 760; ii, 504; (VIRCHOW), A., ii, 504.
constitution of (NIERENSTEIN), A., i, 446.
qualitative analysis of (NIERENSTEIN), A., ii, 911.
Tanning materials, extraction of, for analysis (VEITCH and HURT), A., ii, 405.
assay of (PROCTER and BENNETT), A., ii, 405.
estimation of gallotannic acid in (MANEA), A., ii, 504.
Tantalum, atomic weight of (HINRICHSEN), A., ii, 763.
Tantalum, estimation of, by Marignac's method (TIGHE), A., ii, 708.
Tantalum filaments for lamps (SIEMENS & HALSKÉ), A., ii, 213.
Tap, glass, non-leaking (CHATTOCK), A., ii, 221.
Tar oils, use of methyl sulphate in the estimation of, in admixture with resin oils or mineral oils (VALENTA), A., ii, 310.
Tartaric acid and its salts, crystalline appearance of calcium tartrate as a distinctive and delicate test for the presence of (SULLIVAN and CRAMPTON), A., ii, 907.
assay of commercial (CARLES), A., ii, 318, 710.
estimation of the free and combined, in urine (HUBERT), A., ii, 204.
Tartaric acid, salts, detection of (TOCHER), A., ii, 813.
antimony salt (BOUGAULT), A., i, 336.
antimony ethyl ester-salt (BOUGAULT), A., i, 336, 558.
antimony potassium salt as a standard for iodometry (METZL), A., ii, 194; (LUTZ), A., ii, 577.
thallium salt, isomorphous (HERBETTE), A., i, 929.
Tartaric acids, *d*- and *i*-, and racemic acid, separation of (WINTHORP), A., ii, 736.
l-**Tartaric acid**, methyl ester and *l*-methyl sodium ester-salt, rotation and molecular solution volume of (PATTERSON and KAYE), T., 1884; P., 274.
Tartramide, the influence of various substituents on the optical activity of (FRANKLAND and TWISS), T., 1852; P., 285.
Taurocholic acid, syntheses of (BONDI and MÜLLER), A., i, 633.
and glycocholic acid, action of, on the pancreatic decomposition of fats (MAGNUS), A., ii, 691.
Tautomerism (RABE and SPENCE), A., i, 89.
new case of (KNORR and HICKS), A., i, 795.
and isomerism (MICHAEL and MURPHY), A., i, 179.
Taxicatin (BOURQUELOT), A., ii, 386.
Tea, tannin from (STRAUSS and GSCHWENDNER), A., i, 597.
Java, from *Thea assamica* (MAURENBRECHER and TOLLENS), A., ii, 886.
Telegram, congratulatory, to Prof. Adolph Lieben, P., 311.
Telluric acid. See under Tellurium.
Tellurium, atomic weight of (GUTBIER and WAGENKNECHT), A., ii, 81; (GUTBIER and GOSSNER), A., ii, 436.
a hydrid element (LE BLANC), A., ii, 742.
isomorphism of, with selenium (PELLINI), A., ii, 609; (PELLINI and VIO), A., ii, 663.
radioactive. See Radiotellurium.
cathodic behaviour of (LE BLANC), A., ii, 67; (MÜLLER and NOWAKOWSKI), A., ii, 145.
action of, on copper (HEYN and BAUER), A., ii, 230.
compounds of, with antimony (PÉLABON), A., ii, 173.
Tellurium fluoride and its physical constants (PRIDEAUX), T., 320; P., 20.
Tellurous and Telluric acids, estimation of (BERG), A., ii, 124.
Temperature, influence of, on vital processes (ABEGG), A., ii, 95; (HERZOG), A., ii, 115.
of non-luminous flames coloured by metallic salts (KURLBAUM and SCHULZE), A., ii, 726.
See also under Thermochemistry.
Temperature gradients of the earth on the hypothesis of radioactive and chemical processes (KÖNIGSBERGER), A., ii, 515.
Terrium, atomic weight and spark spectrum of (URBAIN), A., ii, 361; (HINRICHSEN), A., ii, 450.
cathodic phosphorescence of, diluted with lime (URBAIN), A., ii, 674.

- Terbium**, Urbain's, spectrum of (EBERHARD), A., ii, 360.
- Terebenthene**, amino-, constitution of (WALLACH and ISAAC), A., i, 685.
- Terebic acid**, synthesis of (SIMONSEN), P., 307; (HALLER and BLANC), A., i, 625.
- Terebyltropeine** and its additive salts (JOWETT and HANN), T., 362; P., 61.
- Terephthalylidacetic acid**, ethyl ester (BEREND and HERMS), A., i, 854.
- Terephthalylidacetoacetic acid**, ethyl ester, and its decomposition (BEREND and HERMS), A., i, 853.
- Terephthalylidacetone** (BEREND and HERMS), A., i, 854.
- Terpene**, $C_{10}H_{16}$, and its additive salts, from oil of myrrh (LEWINSOHN), A., i, 972.
- Terpene alcohols**, aliphatic (ENKLAAR), A., i, 377.
- Terpenes** and ethereal oils (WALLACH, (HÜTTNER, and ALtenburg), A., i, 160, 514; (WALLACH and ISAAC), A., i, 175; (WALLACH), A., i, 194, 370; (WALLACH and SCHMITZ), A., i, 372; (WALLACH and LAUTSCH); A., i, 522; (WALLACH, BESCHKE, EVANS, and ISAAC), A., i, 563; (WALLACH, ENGELBRECHT, ISAAC, and JÄGER), A., i, 683. from Finnish pine and fir resins (ASCHAN), A., i, 442, 686. from the Norway pine and Douglas fir (FRANKFORTER), A., i, 971. experiments on the synthesis of (PERKIN), T., 832; (KAY and PERKIN), T., 839, 1640; P., 72, 269.
- Terpenic compounds**, formation and distribution of, in *Citrus Aurantium* (CHARABOT and LALOUE), A., ii, 385.
- Terpenylic acid**, synthesis of (SIMONSEN), P., 307.
- cis*-**Terpin diacetate** (HOUBEN), A., i, 520.
- Terpineol**, density, magnetic rotation, and refractive power of (PERKIN), T., 851. new reaction of (REICHARD), A., ii, 503.
- β -**Terpineol**, new compounds from (WALLACH and SCHMITZ), A., i, 372.
- Terpinyl propionate** (HOUBEN), A., i, 520.
- Testudo graeca* eggs. See Eggs, tortoise.
- Tetra-acetyl-d-galactonic acid**, lactone of (PAAL and WEIDENKAFF), A., i, 802.
- Tetra-acetyl-d-gluconic acid**, lactone of (PAAL and HÖRNSTEIN), A., i, 802.
- Tetra-acetylquinic acid** and its phenyl ester (ECHTERMEIER), A., i, 368.
- Tetra-acetyl-** See also under the parent Substance.
- Tetra-anisylerythritol** (LAW), T., 1518.
- Tetra-azo-azodiphenyl** salts (WILLSTÄTTER and KALB), A., i, 996.
- Tetrabenzoylquinic acid** and its salts, ethyl ester, and chloride (ECHTERMEIER), A., i, 368.
- Tetrabenzoyley**. See also under the parent Substance.
- Tetracuminalerythritol** (LAW), T., 1518.
- Tetradecanedicarboxylic acid**. See Tetrapropylsuccinic acid.
- Tetradecylthiophane** (MABERY and QUAYLE), A., i, 395.
- Tetraethyl-rhodamine** and -aporphodamine silver nitrates (NOELTING and DZIEWOŃSKI), A., i, 874.
- Tetrahedrite** from the Sylvester mine, Vosges, Alsace (UNGEMACH), A., ii, 765.
- Tetrahydroaldehydecollidine**. See 2-Methyl-5-ethyltetrahydropyridine.
- 9:10-Tetrahydroanthracene** and 9:10-dibromo- (GODCHOT), A., i, 495.
- Δ^1 -**Tetrahydrobenzaldehyde** and its oxime and semicarbazone (WALLACH and ISAAC), A., i, 565.
- Tetrahydrobenzene**. See cycloHexene.
- Tetrahydrocarolina oxide** (α -phenyl- γ -2-furylpropane) (SEMMLER), A., i, 298.
- Tetrahydrocarvone**, 8-hydroxy-, and its oxime and semicarbazone (RUPE and LIECHTENHAN), A., i, 375.
- Tetrahydrocolumbine** and its salts (GÜNZEL), A., i, 977.
- Tetrahydrocuminaldehyde**, source of, in plants (WALLACH), A., i, 195.
- Tetrahydrodeoxycytisine** and its additive salts and nitroso- (FREUND and HORKHEIMER), A., i, 302.
- Tetrahydronaphthoic acids**, resolution of (PICKARD and YATES), T., 1101; P., 202.
- ac.*-**Tetrahydro-2-naphthol**, resolution of, by *l*-menthylcarbimide (PICKARD and LITTLEBURY), T., 1254; P., 238.
- Tetrahydrophenyl acetate** (MANNICH), A., i, 432.
- cis*- Δ^3 -**Tetrahydrophthalic anhydride**, affinity constants of (ABATI), A., i, 959.
- Δ^3 -**Tetrahydropyridine-3-aldehydenitrophenylhydrazone**, hydrochloride of (WOHL, HERTZBERG, and LOSANITSCH), A., i, 106.
- Tetrahydropyridine series**, new acid of the (PICCININI), A., i, 983.
- Tetrahydroquinoline**, action of formaldehyde on (WEERMAN), A., 696.

- Tetrahydroquinonedicarboxylic acid, ethylester, synthesis of (TREPHILIEFF), A., i, 511.**
- Δ^1 -Tetrahydro-*p*-tolualdehyde and its oxime and semicarbazone (WALLACH and EVANS), A., i, 566.**
- Δ^1 -Tetrahydro-*o*- and *m*-tolualdehydes and their oximes and semicarbazones (WALLACH and BESCHKE), A., i, 565.**
- Tetrahydro-*m*- and *p*-tolic acids. See 1-Methyl- Δ^1 -cyclohexene-3- and -4-carboxylic acids.**
- Tetrahydroumbellulone and its semicarbazones (TUTIN), T., 1119.**
- 2:5:2':5'-Tetramethoxybenzophenone and its oxime and phenylhydrazone (KAUFFMANN and GROMBACH), A., i, 288.**
- 3:4:3':4'-Tetramethoxybenzophenone and its oxime (PERKIN, WEIZMANN, and SMITH), T., 1661.**
- Tetramethoxycaffeine (FISCHER and ACH), A., i, 220.**
- 2:5:2':5'-Tetramethoxy-diphenylethyl-carbinol and - α -diphenylpropylene and its bromo-derivative (KAUFFMANN and GROMBACH), A., i, 288.**
- Tetramethoxydiphenylphthalide (PERKIN and WEIZMANN), T., 1657.**
- 5:7:2':4'-Tetramethoxyflavanone and 3-isonitroso- (v. KOSTANECKI, LAMPE, and TAMBOUR), A., i, 301.**
- Tetramethoxy-4'-methylbenzophenones, 3:4:5:1'- and 2:3:4:3'- (PERKIN, WEIZMANN, and HAWORTH), T., 1663.**
- 1:4:5:6-Tetramethoxynaphthalene (PERKIN and WEIZMANN), T., 1658.**
- 4'-Tetramethylidiaminobenzhydrol, 2- and 3-amino-, *N*-acyl derivatives of (KLEIGL), A., i, 434.**
- 4':4'-Tetramethylidiaminobenzophenone, amino-derivatives, and their oximes and acyl derivatives, and nitro-derivatives (KLEIGL), A., i, 434.**
- Tetramethylidiaminodimethylcarbinol and its esters and their additive salts (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 936.**
- Tetramethylidiaminodiphenyl-ethylene, -propane, and -propylene (FREUND and MAYER), A., i, 384.**
- $\beta\beta$ -Tetramethylidaminodiphenyl- β -propionic acid (FOSSE), A., i, 976.**
- Tetramethylidiaminophenyldimethyl-carbinol (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 936.**
- Tetramethylidiaminophenyldimethyl-carbinyl benzoate hydrochloride (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 936.**
- s-4:4'-Tetramethylidiaminotetraphenylethylene and its salts, glycol, and 3:3'-disulphonic acid and its salts (WILLSTÄTTER and GOLDMANN), A., i, 980.**
- Tetramethylammonium pentaiodide, preparation of (SILBERRAD and SMART), T., 173; P., 15.**
- $\beta\beta\gamma$ -Tetramethylbutane. See Hexamethylmethane.**
- γ -Tetramethyldehydrobrazilin (HERZIG, POLLAK, and KLUGER), A., i, 872.**
- 5:5:5':5'-Tetramethyl-dicyclohexane, 1:1'- and 3:3'-dihydroxy-, and - Δ^{22} -dicyclohexene, 1:1'-dihydroxy- (CROSSLÉY and RENOUF), P., 303.**
- 1:2:3:6-Tetramethyl-2:3-dihydrobenz-iminazole and 2-hydroxy-, and their resolution (FISCHER and RÖMER), A., i, 539.**
- 2:6:2':6'-Tetramethylidiphenylmethane, 3:5:3':5'-tetrabromo-4:4'-dihydroxy- (AUWERS, KIPKE, SCHRENK, and SCHRÖTER), A., i, 263.**
- Tetramethylethylene and its dibromide (BLAISE and COURTOY), A., i, 794.**
- See also β -Dimethyl- Δ^2 -butylene.
- Tetramethylethylene glycol. See Pinacone.**
- Tetramethyl glucose, addition of alkyl haloids to (IRVINE and MOODIE), T., 1578; P., 204.**
- Tetramethylhaematoxylin, acetyl derivative (HERZIG, POLLAK, and KLUGER), A., i, 872.**
- Tetramethylhaematoxylone, phenylhydrazine compound of, and its acetyl derivative (HERZIG and POLLAK), A., i, 198, 871.**
- ψ -Tetramethylhaematoxylone and its nitro-derivatives and their dehydro-acetyl compounds, and its methyl ether and its nitro-derivatives (HERZIG, POLLAK, FISCHER, and MAYRHOFER), A., i, 871.**
- 2:3:3:5-Tetramethyl- ψ -indole methiodide (KONSCHEGG), A., i, 452.**
- Tetramethyl mannose and α -methylmannose, addition of alkyl haloids to (IRVINE and MOODIE), T., 1585; P., 205.**
- Tetramethylmethane ($\beta\beta$ -dimethylpropene), bromine derivatives of (PONI), A., i, 1.**
- 1:3:3:5-Tetramethyl-2-methyleneindoline and its additive salts (KONSCHEGG), A., i, 453.**
- Tetramethyl methylglucosides, α - and β -, addition of alkyl haloids to (IRVINE and MOODIE), T., 1584; P., 204.**

- 1:1:3:5-Tetramethyl-4-cyclopentanone-2-carboxylic acid** (1:1:3:5-tetramethyl-4-ketopentamethylene-2-carboxylic acid) and its oxime and semicarbazone (PERKIN and THORPE), T., 787.
- Tetramethylphloroglucinolaldehyde** and its potassium salt, oxime, and methyl ether (HERZIG, WENZEL, and RONA), A., i, 93.
- s-Tetramethylpropane.** See $\beta\delta$ -Dimethylpentane.
- $\beta\beta\epsilon'\epsilon'$ -Tetramethylsuberic acid** and its esters and salts, preparation of (WALKER and WOOD), T., 599; P., 104.
- bromo- and hydroxy-derivatives of (WOOD), T., 604; P., 104.
- s-Tetramethyltetramethylene oxide** (HENRY), A., i, 922.
- Tetramethylthionine**, amino-, benzoyl derivative of, and its iodide and hydrochloride (GNEHM and KAUFLE), A., i, 389.
- Tetramethyltrimethylenediamine** and its additive salts (KNORR and ROTH), A., i, 458.
- $\beta\beta\epsilon\epsilon$ -Tetra-p-phenetidinohexane- $\gamma\delta$ -dicarboxylic acid**, ethyl ester and phenetide of (ROSSI), A., i, 982.
- Tetraphenylallene** and its isomeride (VORLÄNDER and SIEBERT), A., i, 345.
- Tetraphenylldiaminoazobenzene** (HAEUSSERMANN), A., i, 910.
- $\alpha\beta\beta\beta$ -Tetraphenylethane** and its bromo-, chloro-, and tetrauro-derivatives (GOMBERG and CONE), A., i, 414, 821.
- Tetraphenylethylene**, amino-derivatives of (WILLSTÄTTER and GOLDMANN), A., i, 980.
- Tetraphenylhydrazine** (WIELAND and GAMBARJAN), A., i, 453.
- Tetraphenylmethane**, preparation of (FREUND), A., i, 574.
- $\alpha\epsilon\epsilon$ -Tetraphenylpentane- γ -one** and its oxime and β -benzoyl derivative (KOHLER and HERITAGE), A., i, 96.
- s-Tetraphenyl-propane and -propylene** and its bromo-derivative (VORLÄNDER and SIEBERT), A., i, 346.
- $\alpha\beta\gamma\gamma$ -Tetraphenyl- Δ^{α} -propenol** and its peroxide (KOHLER), A., i, 754.
- $\alpha\alpha\gamma\gamma$ -Tetraphenylpropylene alcohol** (VORLÄNDER, SIEBERT, and OSTERBURG), A., i, 346.
- Tetrapiperonylerythritol** (LAW), T., 1519.
- Tetrapropylsuccinic acid** and its anhydride and methyl hydrogen ester (CRICHTON), T., 933; P., 162.
- Tetraresorcinolmelliteins.** See Dianthylbenzene-2:4:5:6-tetracarboxylic acids, 3:6:9:3':6':9'-hexahydroxy-.
- Tetrathiocarbamide** potassium iodide (WERNER), P., 245.
- Tetra-p-tolylhydrazine** (WIELAND and GAMBARJAN), A., i, 453.
- Tetratriacontane** (PETERSEN), A., i, 331.
- 1:2:4:5-Tetrazine-3:6-dicarboxylic acid** and its amide (CURTIUS, DARAPSKY, and MÜLLER), A., i, 940.
- Tetrazoline.** See 1:4-Dihydrotetrazine.
- Tetrolic acid**, ethyl ester, reactions of (FEIST), A., i, 332.
- Textile fibres**, animal and vegetable, behaviour of, with solutions of metallic salts (SCHELLEN), A., i, 69.
- Thallium**, analogies between, and aluminium (FORTINI), A., ii, 87.
- Thallium alloys** with aluminium and copper (DOERINCKEL), A., ii, 166.
- with antimony (WILLIAMS), A., ii, 673.
- with mercury, composition of (SUCHENI), A., ii, 826.
- with silver (PETRENKO), A., ii, 667.
- Thallium halogen compounds** (THOMAS), A., ii, 356; (THOMAS and DUPUIS), A., ii, 663.
- formation of mixed crystals of (MÖNKEMEYER), A., ii, 604.
- iodides (MAITLAND and ABEGG), A., ii, 542.
- oxides (RABE), A., ii, 285, 672.
- sulphide and stannic sulphide, solid phases occurring between (HAWLEY), A., ii, 854.
- Thebaine**, resolution of, by benzoyl chloride (PSCHORR and HAAS), A., i, 204.
- conversion of, into codeine and codineone (KNORR and HÖRLEIN), A., i, 449.
- reactions of (FREUND), A., i, 303; (KNORR and HÖRLEIN), A., i, 877; (REICHARD), A., ii, 909.
- Thebromine**, affinity constants of (WOOD), T., 1840; P., 271.
- barium derivative, salt of, with sodium salicylate (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 692.
- formate, sodium derivative (HOFFMANN, LA ROCHE, & CIE.), A., i, 881.
- compound of, with lithium (DUMESNIL), A., i, 450.
- reaction of (GÉRARD), A., ii, 507.
- Theophylline**, formation of, from caffeine (FISCHER and ACH), A., i, 219.
- affinity constants of (WOOD), T., 1841; P., 271.
- salts of, with barium salicylate (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 715.

Thermal springs. See under Water.

THERMOCHEMISTRY—

Thermochemical constants of inorganic substances (RICHARDS), A., ii, 417.

Thermochemical relationship enunciated by Julius Thomson (BOSE), A., ii, 727.

Thermochemistry of phenylosazones and phenylhydrazones of the α -diketones and reducing sugars (LANDRIEU), A., ii, 270.

Thermodynamics of heterogeneous hydrolytic equilibrium (DOLEZALEK and FINCKH), A., ii, 597.

Thermal conductivity of crystallised conductors (JAEGER), A., ii, 653.

Specific heat of a gas, quantitative relation between the, and its molecular constitution (BLACKMAN), A., ii, 331.

of gases (LUSSANA), A., ii, 70.

Temperature of fusion, variation of, with pressure (NEGREANU), A., ii, 422.

Latent heat of fusion, connection between depression of freezing point and (DRUCKER), A., ii, 71.

Heat of combustion and constitution-formula of azo-colouring matters (LEMOULT), A., ii, 832.

Heat of neutralisation of strong acids and bases as affected by temperature and concentration (WÖRMANN), A., ii, 148.

Temperature of reaction, depression of, in syntheses with organic chloro-compounds (WOHL), A., i, 559.

Heat of vaporisation, relation of, to boiling point (BINGHAM), A., ii, 522.

Critical temperatures. See under Critical.

Calorimetry, elimination of thermometer lag in (JAEGER and v. STEINWEHR), A., ii, 216.

of volatile liquids (ROSENHEIM), A., ii, 269.

Temperatures, high, determination of, by means of chemical equilibrium and the laws of thermodynamics (v. WARTENBERG), A., ii, 522.

electrical resistance furnace for the measurement of, with the optical pyrometer (LAMPEN), A., ii, 598.

Temperature phenomena, new low (DEWAR), A., ii, 830.

Temperature regulator (VILLIERS), A., ii, 277.

THERMOCHEMISTRY:—

Transition temperature, abnormal depression of the, in mixed crystals (BOEKER), A., ii, 830.

Calorimeter, William Thomson, improved form of (GRAY), A., ii, 491.

Thermometry, new fixed point in (RICHARDS and WELLS), A., ii, 727.

Thermometer, differential gas, for showing the abnormal expansion of dissociating gases (SCHRÖDER), A., ii, 727.

geological (VAN'T HOFF), A., ii, 36. simple sensitive, for low temperatures (STOCK and NIELSEN), A., ii, 521.

Thermometers, new method of standardising, below 0° (RICHARDS and JACKSON), A., ii, 726.

Thermoscope for demonstrating the thermal effects of solution (SCHRÖDER), A., ii, 727.

Thermostat, simple toluene regulator and shaking machine for (LUNDÉN and TATE), A., ii, 831.

Thermostat regulator for alternate heating and cooling (VILLIERS), A., ii, 521.

Thermoscope, Thermometers, and Thermostat. See under Thermochemistry.

Thiazine dye, $C_{30}H_{30}O_2N_6S_4Cl_2$, from indaminethiosulphonic acid (GNEHM and KNECHT), A., i, 836.

Thiazine and oxazine dyes, constitution of (HANTZSCH), A., i, 206, 453; (KEHRMANN, MODEBADZÉ, and VESELÝ), A., i, 306.

Thiazine mercaptan, thioncarbonate of (GNEHM and KAUFLER), A., i, 390.

Thiazines (GNEHM and KAUFLER), A., i, 389.

and indamines (GNEHM and SCHROTER), A., i, 211.

Thio-acids, organic (KLASON and CARLSON), A., i, 232; (BIILMANN), A., i, 625, 626.

estimation of, volumetrically (KLASON and CARLSON), A., ii, 255.

Thiobiazolones and xanthates, chemistry of the (ORMEROD), P., 206.

Thiocarbamide, reaction of, with phenyl chlorocarbonate (DIXON), T., 909; P., 148.

as a solvent for gold (MOIR), T., 1345; P., 105, 164.

compounds of, with salts of univalent copper (ROSENHEIM and STADLER), A., i, 407.

compounds of, with salts of bivalent metals (ROSENHEIM and MEYER), A., i, 407.

- Thiocarbamide**, compound of, with potassium iodide (WERNER), P., 245.
- copper salts, and their derivatives (KOHLSCÜTTER and BRITTEBANK), A., i, 812.
- Thiocarbamides**, oxidation products of, and their isomerides (DOST), A., i, 315.
- action of acid chlorides on (DIXON and HAWTHORNE), P., 322.
- aromatic, new oxidation products of unsymmetrical disubstituted (DOST), A., i, 351.
- Thiocarbimide**, kinetics of the transformation of, into ammonium thiocyanate in dilute aqueous solution (DUITOIT and GAGNAUX), A., ii, 660.
- Thiocarbimides** and thiocyanates (JOHNSON, BATEMAN, BRAUTLECHT, and PALMER), A., i, 954.
- action of, on ethyl aminocrotonate (BEHREND and HENNICKE), A., i, 312.
- action of bases on (v. WALTHER and STENZ), A., i, 831.
- interaction of, with ethyleneariline and the ethylenetoluidines (DAVIS), T., 713; P., 114.
- Thiocarbimidocarylcarbonates** and their reactions (DIXON), T., 896; P., 147.
- Thiocarbonates** (HOLMBERG), A., i, 330.
- Thiocarbonic acid** and some of its salts, preparation and properties of (O'DONOUGHE and KAHAN), T., 1812; P., 273.
- Thio-compounds** from ketones and aldehydes (COMPAGNIE MORANA), A., i, 23.
- importance of, in the body (EDINGER and CLEMENS), A., ii, 877.
- ar*-**Thio-compounds**, isomerism of (HINSBERG), A., i, 654.
- Thiocyanate**, source of, in the organism (WILLANEN), A., ii, 784.
- Thiocyanates** and thiocarbimides (JOHNSON, BATEMAN, BRAUTLECHT, and PALMER), A., i, 954.
- organic acid, and their derivatives, chemistry of (DIXON), T., 892; P., 147.
- See also Metallic thiocyanates.
- Thiocyanic acid**, estimation of, in sewage (KORN), A., ii, 808.
- Thioindigo-red B** (WIRTHER), A., i, 528.
- Thionaphthen**, 2-hydroxy- (*thioindoxyl*) and its 1-carboxylic acid (FRIEDLÄNDER), A., i, 378.
- Thioncarbamic acid**, phenyl ester (RIVIER), A., i, 948.
- Thionphenyl-mono- and -di-methyluracils** (BEHREND and HENNICKE), A., i, 313.
- 2-Thion-3-p-tolyl-6-methyl-1:2:3:4-tetrahydroquinazoline** and its additive salts (v. WALTHER and BAMBERG), A., i, 387.
- Thion-p-tolylmethyluracil** (BEHREND and HENNICKE), A., i, 313.
- Thiontrimethyluracil** (BEHREND and HENNICKE), A., i, 314.
- Thiophans** in Canadian petroleum (MABERY and QUAYLE), A., i, 394.
- Thiophosphoric acids**. See under Phosphorus.
- Thiopyrine**, benzeneazo-derivatives of (MICHAELIS and SCHLECHT), A., i, 614.
- Thiosulphuric acid** and **Thiosulphates**. See under Sulphur.
- Thorianite**, variety of, from Galle, Ceylon (DUNSTAN and JONES), A., ii, 554.
- Thorium**, preparation of (MOISSAN and HÖNIGSCHMID), A., ii, 678.
- radioactivity of (ELSTER and SEITEL), A., ii, 643.
- α -particles from (BRAGG), A., ii, 416.
- mass of the α -particles from (RUTHERFORD and HAHN), A., ii, 719.
- origin of β -rays of (LEVIN), A., ii, 718.
- emanation, absorption of (KLAUS), A., ii, 416.
- new element presenting the radioactive characters of (BLANC), A., ii, 323.
- Thorium alloy with aluminium** (HÖNIGSCHMID), A., ii, 173.
- Thorium compounds**, relation between radioactivity and composition of (McCoy and Ross), A., ii, 415.
- chemical separation of radioactive types of matter in (SCHLUNDT and MOORE), A., ii, 2.
- Thorium salts**, radioactivity of (BOLTWOOD; DADOURIAN), A., ii, 415.
- separation of radiothorium from (BLANC and ANGELUCCI), A., ii, 644.
- Thorium hydroxide hydrosol** (MÜLLER), A., ii, 762.
- silicide (HÖNIGSCHMID), A., ii, 173.
- Thorium minerals**, radioactivity of (BOLTWOOD; DADOURIAN), A., ii, 415.
- Thrombin**. See Fibrin-ferment.
- Thujonecarboxylic acid** and the iso-acid, ethyl esters (KÖTZ, BIEBER, and SCHÜLER), A., i, 668.
- Thujoneoxalic acid**, ethyl ester, and its semicarbazone (KÖTZ, BIEBER, and SCHÜLER), A., i, 668.
- iso***Thujoneoxalic acid**. See 3:4-Dimethyl-2-*isopropylcyclopentene-5-one-1*-oxalic acid.

- Thuringite** from Moravia (KRETSCHMER), A., ii, 458.
Thymol, amino-, formation of (PUXEDDU), A., i, 995.
Thymols, iodised. See Aristols.
 β -Thymoxy- β -phenylacrylonitrile (MOUREU and LAZENEC), A., i, 276.
Thymus gland. See Glands.
Tiglic aldehyde, condensation of, with acetone (DAUTWITZ), A., i, 803.
Tin, spongy, electrolytic preparation of (TOMMASI), A., ii, 172.
action of colloidal solutions of, on germination (MICHEELS and DE HEEN), A., ii, 115.
Tin alloys with aluminium (GwyER), A., ii, 544.
with antimony (GALLAGHER), A., ii, 367.
with copper, constitution of (SHEPHERD and BLOUGH), A., ii, 861.
estimation of tin in (LEVY), A., ii, 55.
with gold (MOISSAN), A., ii, 92.
with lead, estimation of lead in (GIUSTI), A., ii, 581.
Tin salts, hydrolysis of, in presence of iodides and iodates (MOODY), A., ii, 706.
tetrachloride, preparation of (RENZ), A., ii, 173.
action of nitrogen sulphide on (DAVIS), T., 1576; P., 261.
selenides, sulphides, and tellurides (PÉLALON), A., ii, 454.
Stannic sulphate, compounds of, with alkaline earth sulphates and with lead sulphate (WEINLAND and KÜHL), A., ii, 762.
sulphide and thallium sulphide, solid phases occurring between (HAWLEY), A., ii, 854.
Tin, new reaction for (REICHARD), A., ii, 806.
use of chloric acid in the estimation of, in bronze and brass (BERNARD), A., ii, 305.
estimation of, in copper-tin alloys (LEVY), A., ii, 55.
new method of separating antimony from (CZERWEK), A., ii, 708.
separation of, from cobalt and nickel (PUSHIN and TRECHZINSKY), A., ii, 199.
separation of, from tungsten (DONATH), A., ii, 309; (ANGENOT), A., ii, 496.
Tincal, formation of (VAN'T HOFF and BLASDALE), A., ii, 177.
Tinctures, detection of methylated spirit in (SCHMIDT and GAZE), A., ii, 57.
Tinstone from Madagascar, A., ii, 236.
- (*Tolyl compounds, Me=1.*)
Tissue juices, animal, proteolytic enzymes of (ABDERHALDEN and TERUCHI), A., ii, 873.
Tissues, influence of electrolytes on the staining of, by erythrosin and methyl-green (ROBERTSON), A., ii, 376.
role of sodium chloride in the histological impregnation of, by silver nitrate (MACALLUM and MENTEN), A., ii, 182; (ACHARD and AYNAUD), A., ii, 561.
oxidation in, in presence of ferric salts (BATTELLI and STERN), A., ii, 184.
oxygen tension in (BARCROFT), A., ii, 178.
alcohol in (FORD), A., ii, 867.
iron in (MOUNEYRAT), A., ii, 582.
estimation of ammonia in (GRAFE), A., ii, 709.
estimation of iron in (MARRIOTT and WOLF), A., ii, 582.
heart. See Heart tissue.
lung. See Lung tissue.
nervous. See Nervous tissues.
vegetable. See Vegetable tissues.
Titaniferous haemタイト from Pralognan, Val d'Aosta (MILLOSVEICH), A., ii, 369.
Titanite, constitution of (ZAMBONINI), A., ii, 370.
Titanium, distillation of (MOISSAN), A., ii, 366.
tervalent, oxidation of (MANCHOT and RICHTER), A., ii, 172.
some reactions of (GROSSMANN), A., ii, 806.
Titanium tetrachloride, preparation of (RENZ), A., ii, 173.
action of nitrogen sulphide on (DAVIS), T., 1576; P., 261.
silicide (HÖNIGSCHMID), A., ii, 678.
Titanomium salts (DILTHEY, EDUARD-OFF, and SCHUMACHER), A., i, 342.
Tobacco, alkaloids of (PICTET), A., i, 979.
Tobacco plants, lime factor for (DAIKUHARA), A., ii, 388.
assimilation and distribution of silica and potassium in (BLANCK), A., ii, 574.
***o*-Tolidine**, acetyl derivative of (BIEHRINGER and BORSUM), A., i, 953.
sulphates (BIEHRINGER and BORSUM), A., ii, 637.
***p*-Tolidioxime peroxide** (PONZIO), A., i, 735.
***pp'*-Tolilic acid**. See Di-*p*-methylbenzilic acid.
Tolualdehyde, reactions of, with hydroxy-acids (ALBERDA VAN EKENSTEIN and BLANKSMA), A., i, 512.

- (*Tolyl compounds, Me=1.*)
- o-Tolualdehyde* (STOERMER, SCHENCK ZU SCHWEINSBERG, SIBBERN-SIBBERS, and RIEBEL), A., i, 583.
- p-Tolualdehyde*, synthesis of, and its azine, phenylhydrazone, and condensation product of, with benzidine, and its 2:6-dinitro- and nitroso-derivatives (GATTERMANN), A., i, 589.
- Tolualdehydes*, *o*- and *p*-, and their semicarbazones (BLAISE and COURTOT), A., i, 554.
- Tolualdehydes*, 3-hydroxy-. See *α*- and *β*-Homosalicylaldehydes.
- p-Tolualdoxime* peroxide (PONZIO), A., i, 735.
- Toluene*, bromination of (HOLLEMAN and VANDER LAAN), A., i, 154; (VANDER LAAN), A., i, 490. detection and estimation of, in benzene (RAIKOW and ÜRKEWITSCH), A., ii, 310.
- Toluene*, *pentabromo*- (KLAGES and SOMMER), A., i, 567.
- 2:3:4:5-tetrachloro-, properties of (COHEN and DAKIN), T., 1453; P., 241.
- o*-, *m*-, and *p*-fluoro- (HOLLEMAN), A., i, 942.
- 3:4-diido-, and its chlorination (WILLGERODT and SIMONIS), A., i, 156.
- nitro-, detection and estimation of, in nitrobenzene (RAIKOW and ÜRKEWITSCH), A., ii, 310.
- m*-nitro-, iodo-, iodoso-, and iodoxy-compounds of, and their salts (WILLGERODT and SIMONIS), A., i, 155.
- trinitro-, compound of, with *p*-toluidine (JACKSON and CLARKE), P., 84.
- p-Tolueneazo-β-amino-8-nitronaphthalene* (SMITH), T., 1509; P., 236.
- 4-*p-Tolueneazo-2-bromo-6-nitrophenol*, preparation of, and its acetyl and benzoyl derivatives (HEWITT and WALKER), T., 185; P., 16.
- Tolueneazoeugenols*, *o*-, *m*-, and *p*-, and their acetyl derivatives and ethyl ethers (ODDO and PUXEDDU), A., i, 992.
- Tolueneazoisoeugenols*, *o*- and *m*- (PUXEDDU), A., i, 774.
- Tolueneazo-m-hydroxybenzoic acids*, *o*- and *p*-, and their reduction (PUXEDDU), A., i, 995.
- p-Toluene-β-diazoaminonaphthalene-8-sulphonic acid*, sodium salt (SMITH), T., 1506; P., 236.
- p-Toluenediazobis-4-dimethylamino-benzaldoxime* (BRESLER, FRIEDEMANN, and MAI), A., i, 322.
- (*Tolyl compounds, Me=1.*)
- Toluenediazonium salts*. See *Diazotoluene salts*.
- p-Toluenediazo-ψ-semicarbazinocamphor* and its decomposition by alkali (FORSTER), T., 235; P., 31.
- Toluene-3:5-dicarboxylic acid*. See *Uvic acid*.
- Toluenesulphonic acid*, *p*-fluoro-, amide and chloride of (HOLLEMAN), A., i, 942.
- 2-*p-Toluenesulphonyl-aminotoluene* and *-methylaminotoluene-5-azo-β-naphthole* (MORGAN and MICKLETHWAIT), A., i, 911.
- p-Toluenesulphonyl-p-aziminotoluene* and *-p-tolylenediamine* (MORGAN and MICKLETHWAIT), A., i, 911.
- p-Toluenesulphonylmethyl-p-tolylenediamine* (MORGAN and MICKLETHWAIT), A., i, 911.
- Toluene-p-sulphonyl-m-nitroaniline* (MORGAN and MICKLETHWAIT), T., 1292.
- p-Toluenesulphonyl-5-nitro-o-toluidine* and its *N*-methyl derivative (MORGAN and MICKLETHWAIT), A., i, 911.
- Toluene-p-sulphonyl-m-phenylenediamine* and its diazotisation, and azo-*β*-naphthol derivative (MORGAN and MICKLETHWAIT), T., 1292.
- m-Toluiac acid*, 2- and 4-amino- and -nitro- (FINDEKLEE), A., i, 21.
- ω*-amino-, *N*-acyl derivative of. See *Benzylaminecarboxylic acid, N*-acyl derivatives of.
- ω*-chloro-6-hydroxy- and 6-hydroxy-ethyl esters (AUWERS), A., i, 839.
- 2-hydroxy-, and its derivatives, and the action of phosphorus chlorides on (ANSCHÜTZ, SCHROEDER, WEBER, and ANSPACH), A., i, 505.
- 4-hydroxy-, action of phosphorus chlorides on (ANSCHÜTZ and SCHROEDER), A., i, 507.
- 2-nitro- (NOELTING and GACHOT), A., i, 181.
- 4-nitro-6-amino- and 6-nitro-4-amino-, and their *N*-acetyl derivatives and their salts (ERRERA and MALTESE), A., i, 84.
- ψ-Toluiac acid* (PERKIN and SIMONSEN), P., 134.
- p-Toluiac acid*, 3-hydroxy-, action of phosphorus chlorides on (ANSCHÜTZ and SCHROEDER), A., i, 506.
- o-Toluidine* hydrogen phosphite (LEMOUTL), A., i, 493.
- m-Toluidine*, *p*-iodo-, and its 6-chloro-derivatives, and their salts and acyl derivatives (WILLGERODT and SIMONIS), A., i, 156.

- (*Tolyl compounds, Me=1.*)
- m-Toluidine**, 2:6-dinitro- (MEISENHEIMER and PATZIG), A., i, 652.
- p-Toluidine**, alkyl derivatives, behaviour of, in the organism (HILDEBRANDT), A., ii, 110.
- isosuccinic acid derivative of, anti-pyretic action of (MALERBA), A., ii, 693.
- Toluidines**, *o*- and *p*-, imides from (ORLOFF), A., i, 420.
- benzoyl derivatives. See Benzo-*o*- and *p*-toluidines.
- o*-, *m*-, and *p*-, relative rates of oxidation of (BRADSHAW), A., i, 360.
- m-Toluidino-isobutyronitrile**, amino-, and its amide (BUCHERER and GROLÉE), A., i, 350.
- a-Toluidino-isobutyronitriles** and -phenylacetonitriles and their amides, *o*- and *p*- (BUCHERER and GROLÉE), A., i, 349.
- 4-p-Toluidino-4-dimethylaminoanthraquinonesulphonic acid** (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 968.
- 3-Toluidino-1:1-dimethyl- $\Delta^{3.5}$ -dihydrobenzene, 4-hydroxy-**, and its hydrochloride and acetyl derivative (HAAS), T., 196.
- 3-p-Toluidino-1:1-dimethyl- Δ^3 -cyclohexenone-5**. See 5-Keto-3-p-toluidino-1:1-dimethyl- Δ^3 -tetrahydrobenzene.
- 4-p-Toluidino-1-methylaminoanthraquinone** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 293.
- 2-p-Toluidino-3:5-dinitrobenzoic acid**, *o*-nitro-, and its salts (CUTTITTA), A., i, 697.
- sodium and pyridine salts, crystallography of (RANFALDI), A., i, 664.
- 3-Toluidino-1-phenyl-4-p-tolyl-4:5-dihydro-1:2:4-triazole** (BUSCH and MEHRTEINS), A., i, 118.
- p-Toluidino-*m*- and *p*-tolyliminoalloxanic acids** (KÜHLING and KASELITZ), A., i, 464.
- 3-p-Toluidino-5-p-tolylimino-1:1-dimethyl- Δ^3 -tetrahydrobenzene** and its additive salts and benzoyl derivative (HAAS), T., 199.
- Tolu- ψ -quinol**, ω :2:3:5:6-pentachloro-, and its acetyl derivative (ZINCKE and BÖTTCHER), A., i, 739.
- ω -chloro-2:3:5:6-tetrabromo-, and its acetyl derivative and anilide (ZINCKE and BÖTTCHER), A., i, 168.
- 2:3:5:6-tetrachloro- ω -cyano-, and its acetyl derivative (ZINCKE and BÖTTCHER), A., i, 739.
- (*Tolyl compounds, Me=1.*)
- p-Tolyl benzyl selenide** (TABOURY), A., i, 834.
- Tolyl orthophosphates**. See Methyl-phenyl orthophosphates.
- p-Tolylacetone semicarbazone** (AUWERS), A., i, 963.
- 5-Tolylacridines**, *o*-, *m*-, and *p*-, and their additive derivatives (SCHMID and DECKER), A., i, 305.
- s-p-Tolylallylthiocarbamide** (YOUNG and CROOKES), T., 71.
- Tolylamino**. See Toluidino.
- 2-m-Tolylanthroxan**, 4-chloro-*p*-hydroxy-, and its alkaline salts and acetyl derivative (ZINCKE and SIEBERT), A., i, 516.
- p-Tolyl butyl ketone** and its oxime and semicarbazone (LAYRAUD), A., i, 438.
- Tolylcarbamides**, action of nitrous acid on (HAAGER and DOHT), A., i, 577.
- m-Tolylcarbimide** (HAAGER and DOHT), A., i, 577.
- 3-m-Tolylisocarboxylic acid**, 2-amino- (LIECK), A., i, 49.
- a-o-Tolylcinnamic acid**, 2-amino- and 2-nitro- (PSCHORR and HOFMANN), A., i, 849.
- a-p-Tolylcinnamic acid**, 2-amino- and 2-nitro- (PSCHORR and QUADE), A., i, 849.
- m-Tolylisocoumarin**, action of hydrazine on (LIECK), A., i, 49.
- Tolyliazobisacetoximes** (BRESLER, FRIEDEMANN, and MAI), A., i, 321.
- a-o-Tolyl-3:4-dimethoxy-cinnamic acid**, 2-amino- and 2-nitro- (PSCHORR and TAPPEN), A., i, 848.
- a-p-Tolyl-3:4-dimethoxy-cinnamic acid**, 2-amino- and 2-nitro- (PSCHORR and QUADE), A., i, 849.
- 3-p-Tolyl-1:6-dimethyl-3:4-di-1:2:3:2-tetra-hydroquinazolines** and their additive salts (v. WALTHER and BAMBERG), A., i, 386.
- 5-p-Tolyl- α -dimethylfulgenic acid** and -fulgide (STOBBE and WAHL), A., i, 22.
- 5-Tolyl- α -dimethyl- Δ^3 -pentenoic acid** (BLAISE and COURTOT), A., i, 554.
- p-Tolyldimethyl- ψ -dithiomethylketuret** (FROMM and SCHNEIDER), A., i, 657.
- m-Tolylenediaminodi-isobutyronitrile** and its amide (BUCHERER and GROLÉE), A., i, 350.
- 2:4-Tolylendiamine**, monacyl derivatives, action of nitrous acid on (MORGAN, MICKLETHWAIT, and COUZENS), T., 1293; P., 240.
- m-Tolylenedimalonamic acid**, ethyl ester (MEYER and v. LUTZAU), A., i, 765.

- (*Tolyl compounds, Me=1.*)
- 2:4-Tolylene-4-dimethylamine**, 5-bromo-, interaction of, and *p*-nitrobenzenediazonium chloride (MORGAN and CLAYTON), T., 1058.
- Tolylene-3:4-dimethylamine** and its nitrosoamine, acetyl derivative of (FISCHER and RÜMER), A., i, 539.
- o-Tolylenediphthalimide** (MEYER and JAEGER), A., i, 767.
- o-Tolylenemalonamide** (MEYER and v. LUTZAU), A., i, 765.
- 2:4-Tolylene-4-N-methylamine** (*p-methylamino-o-toluidine*) and its sulphate (GNEHM and SCHRÖTER), A., i, 211.
- Tolylenemethylaminethiosulphonic acid** (GNEHM and SCHRÖTER), A., i, 212.
- o-Tolyleneisosuccinamide** (MEYER and JAEGER), A., i, 766.
- 2-Tolylethylamino-5-methyl-4:5-dihydrothiazoles**, *o*- and *p*-, and their platinichlorides and oxidation (YOUNG and CROOKES), T., 73.
- 2-p-Tolylethylquinoline**, 5- and 8-amino-, and their additive salts (SCHMIDT), A., i, 39.
- m-Tolylhydrazine** and its nitrile and its iminochloride and amidine (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 460.
- m-Tolylhydrazinecarboxylic acid**, phenyl and methyl esters and iminoothers (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 460.
- p-Tolylideneacetone** and its azine, oxime, phenylhydrazone, semicarbazone, and *m*-nitro- (GATTERMANN), A., i, 590.
- 2-Tolylimino-5:5-diethylbarbituric acids**, *o*- and *p*- (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 987.
- 2-Tolylimino-5-methyltetrahydrothiazoles**, *o*- and *p*-, and their acetyl derivatives (YOUNG and CROOKES), T., 72.
- Tolyliminotolylamino-**. See Toluidinotolylamino.
- 2-Tolylmethylamino-5-methyl-4:5-dihydrothiazoles**, *o*- and *p*-, and their platinichlorides and oxidation (YOUNG and CROOKES), T., 72.
- 5-Tolyl-10-methyldihydroacridines**, *o*-, *m*-, and *p*-, 5-hydroxy-, and their ethers (SCHMID and DECKER), A., i, 305.
- 3-p-Tolyl-6-methyl-3:4-di- and 1:2:3:4-tetra-hydroquinazolines** and their additive salts (v. WALTHER and BAMBERG), A., i, 385.
- (*Tolyl compounds, Me=1.*)
- p-Tolylidinitromethane** and its metallic derivatives (PONZIO), A., i, 735.
- β-o-Tolyloxy-β-amyl- and -β-phenyl-acrylamides** (MOUREU and LAZENNEC), A., i, 432.
- o-Tolylloxy-β-phenylacrylonitrile** (MOUREU and LAZENNEC), A., i, 276.
- p-Tolylpropionic acid** (GATTERMANN), A., i, 590.
- α-p-Tolylpropionic acid**, *α*-amino-, and its nitrile, hydrochloride of (JAWEL-OFF), A., i, 427.
- 1-p-Tolylpyridinium chloride**, 3-hydroxy-, and its platinichloride (ZINCKE and MÜHLHAUSEN), A., i, 33.
- m-Tolylsemicarbazide**, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 459.
- Tolylsuccinimide**, *m*-amino- (MEYER and v. LUTZAU), A., i, 766.
- Tolyl-γ-thiobenzoylcyanocarbamides**, *o*- and *p*- (FROMM and SCHNEIDER), A., i, 657.
- Tolylthiobiurets**, *o*- and *p*-, and their reactions with methyl iodide and **Tolylthiouret** hydrodides (FROMM and SCHNEIDER), A., i, 657.
- p-Tolyltrimethylammonium bromide** and its perbromides (FRIES), A., i, 649.
- p-Tolylurethaneacetamide** (A. and L. LUMIÈRE and BARBIER), A., i, 245.
- Tomatoes** and tomato juice, composition of (STÜBER), A., ii, 575.
- Torpedo ocellata**, comparison of muscles, electrical organ, and blood-serum of (BAGLIONI), A., ii, 781.
- Tortoise eggs**. See under Eggs.
- Tourmaline lodes** of the granite of S. Piero in Campo (Elba), minerals from (D'ACHIARDI), A., ii, 555.
- Toxicity** of chemical compounds estimated by their haemolytic effects (VANDEVELDE), A., ii, 379.
- See also Physiological action.
- Toxicodendrin** (ACREE and SYME), A., ii, 795.
- Toxins**, are, ferments? (v. LIEBERMANN), A., ii, 42.
- action of fluorescent substances on (JODLBAUER and v. TAPPEINER), A., ii, 462.
- See also Tuberculin.
- Transition temperature**. See under Thermochemistry.
- Trehalose**, detection and estimation of, in Fungi by means of trehalase (HARANG), A., ii, 311.
- Triacetic acid**, ethyl ester (SPROXTON), T., 1186; F., 202.

- Triacetic lactone**, methyl and ethyl esters (SPROXTON), T., 1186; P., 202.
- Triacontane** (PETERSEN), A., i, 331.
- Trialdehydohydrobenzamide** (THIELE, GÜNTHER, and LEOPOLD), A., i, 750.
- Trialkyl-arsines**, -phosphines, and -stibines, preparation of, by the Grignard reaction (HIBBERT), A., i, 153.
- Trias** of Meurthe-et-Moselle, presence of gold and silver in the (LAUR), A., ii, 556.
- Triazobenzene**, *p*-amino-, and its *N*-acetyl derivative, preparation of (SILBERRAD and SMART), T., 170; P., 14.
- Triazole**, aminohydroxy-, bromo-, iodo-, and nitrohydroxy- (MANCHOT and NOLL), A., i, 213.
- 1:3:4-Triazole**, 1-amino-, and its 2:5-dicarboxylic acid (BÜLOW), A., i, 905.
- Triazoles**, synthesis of (FROMM and SCHNEIDER), A., i, 714.
- 1:1-Triazole-2:5-dimethylpyrrole-3:4-dicarboxylic acid**, ethyl ester (BÜLOW), A., i, 906.
- Triazyl-azoiimide** and -hydrazine and its aldehydic and acetone derivatives (MANCHOT and NOLL), A., i, 214.
- Tribenzyolbromomethane** (WERNER and ZIPSER), A., i, 437.
- Tribenzoylenebenzene**, constitution of (MICHAEL), A., i, 518.
- Tribenzoylephenylhydrazine** (LOCKEMANN and LIESCHE), A., i, 112.
- Tribenzoylquinides** (ECHTERMEIER), A., i, 368.
- Tribenzyllammonium di- and pentaiodides**, preparation of (SILBERRAD and SMART), T., 173; P., 19.
- Tribenzyolphosphine oxide** and its compounds with acids and salts (PICKARD and KENYON), T., 264; P., 42.
- Tribenzenilsilicic** (DILTHEY and EDUARD-OFF), A., i, 128.
- Tridecanetetracarboxylic acid**. See $\beta\kappa$ -Dimethylundecane- $\alpha\eta\lambda$ -tetracarboxylic acid.
- Triethylammonium cyanide** (PETERS), A., i, 817.
- Triethylphosphine**, preparation of (HIBBERT), A., i, 153.
- oxide and its compounds with acids and salts (PICKARD and KENYON), T., 264; P., 42.
- Triformin** (*glyceryl triformate*) (VAN ROMBURGH), A., i, 725.
- Triglycylglycine**, methyl ester and hydrochloride (FISCHER), A., i, 810.
- Trimethinetriazoiimide**, Curtius and Lang's, constitution of (BÜLOW), A., i, 905.
- 3:4:5-Trimethoxybenzoic acid**. See Gallic acid trimethyl ether.
- 3:4:5-Trimethoxybenzoylacetic acid**, ethyl ester (PERKIN and WEIZMANN), T., 1656.
- 3:4:5-Trimethoxybenzoylacetoacetic acid**, ethyl ester (PERKIN and WEIZMANN), T., 1655.
- 2:4:5-Trimethoxybenzylideneacetone**, -diacetophenone, - β -naphthylamine, and -semicarbazide (FABINYI and SZÉKI), A., i, 422.
- 2:4:5-Trimethoxybenzylidenemethyl ethyl and propyl ketones** (FABINYI and SZÉKI), A., i, 423.
- 2:4:4'-Trimethoxychalkone**, 2'-hydroxy-, and its acetyl derivative (v. KOSTANECKI, LAMPE, and TRIULZI), A., i, 202.
- 2:4:5'-Trimethoxychalkone**, 2'-hydroxy-, and its acetyl derivative (BONIFAZI, v. KOSTANECKI, and TAMBOR), A., i, 202.
- 2:2:4'-Trimethoxy-flavanone** and iso-nitroso-, and -flavonol and its acetyl derivative (BONIFAZI, v. KOSTANECKI, and TAMBOR), A., i, 202.
- 2:2:4'-Trimethoxy-flavanone** and iso-nitroso-, and -flavonol and its acetyl derivative (v. KOSTANECKI, LAMPE, and TRIULZI), A., i, 203.
- 3:4:3'-Trimethoxy-4'-methylbenzophenone**, 2-hydroxy-, and its derivatives (PERKIN, WEIZMANN, and HAWORTH), T., 1662.
- 3:4:5-Trimethoxyphenanthrene** (VONGERICHTEN and DITTMER), A., i, 422.
- 2:4:5-Trimethoxy- α -phenylcinnamom-nitrile** (FABINYI and SZÉKI), A., i, 424.
- 2-o-m-p-Trimethoxyphenyl-4-methylene-1:4-benzopyran**, 7-hydroxy-, and its derivatives (BÜLOW and SCHMID), A., i, 201.
- 7:8-dihydroxy-, salts and diacetyl derivative of (BÜLOW and SCHMID), A., i, 300.
- 2(2':4:5')-Trimethoxyphenyl- β -naphthacinchoninic acid** (FABINYI and SZÉKI), A., i, 423.
- 2:2:4:5-Trimethoxyphenylpropaldehyde** (SZÉKI), A., i, 660.
- Tri-*p*-methylamine** and its hydrochloride, silver salt, and nitroso-derivative (GATTERMANN), A., i, 590.
- Trimethylamine**, action of bromine on (NORRIS), A., i, 6.
- Trimethyl arabinose** and its condensation with methyl alcohol and methylation (PURDIE and ROSE), T., 1208; P., 202.
- Trimethylarsine**, preparation of (HIBBERT), A., i, 153.

- 2:4:5-Trimethylbenzaldehyde** and its oxime and phenylhydrazone (GATTERMANN), A., i, 591.
- 1:2:6-Trimethylbenzene**, 3:5-dichloro-, and its oxidation, and 3:5-dichloro-4-bromo-, and 3:5-dichloro-4-nitro- (CROSSLEY and HILLS), T., 881; P., 144.
- 1:3:5-Trimethylbenzene**. See Mesitylene.
- 1:2:3-Trimethylbenzimidazole**, 6-chloronitro-, and its salts and carbinol (FISCHER and LIMMER), A., i, 896.
- Trimethylbenzoic acid**. See Durylic acid.
- Trimethylbrazilein** and its derivatives (ENGELS and PERKIN), P., 132.
- Trimethylbrazilin**, acetyl derivative (HERZIG, POLLAK, and KLUGER), A., i, 872.
- Trimethylbrazilone**, rotations of (HERZIG, POLLAK, and KLUGER), A., i, 872.
- phenylhydrazine compound, acetyl derivative of (HERZIG and POLLAK), A., i, 199.
- 4-Trimethylbrazilone** and its nitro-derivative and methyl ether and its nitro-derivative (HERZIG, POLLAK, and MAYRHOFER), A., i, 872.
- $\alpha\gamma$ -Trimethylbutane- $\alpha\beta\delta$ -tricarboxylic acid** (PERKIN and THORPE), T., 786.
- $\alpha\gamma$** -Trimethylbutane- $\alpha\beta\delta$ -tri- and - $\alpha\beta\beta\delta$ -tetra-carboxylic acids (PERKIN and THORPE), T., 793.
- s-Trimethylisobutanetricarboxylic acid**. See γ -Ethylpentane- $\beta\delta\alpha'$ -tricarboxylic acid.
- $\alpha\alpha\beta$ -Trimethyl- $\Delta\beta$ -butenoic acid** ($\alpha\alpha$ -dimethylisopropenylacetic acid) and its derivatives (COURTOT), A., i, 555.
- γ -bromo-, and .its methyl ester (BLAISE and COURTOT), A., i, 928.
- $\beta\beta\gamma$ -Trimethyl- $\Delta\gamma$ -butenol** and its acetate and phenylurethane (COURTOT), A., i, 555.
- $\alpha\alpha\beta$ -Trimethylbutyric acid** ($\beta\beta$ -dimethyl-pivalic acid), β -bromo- and β -iodo- (BLAISE and COURTOT), A., i, 794.
- $\beta\gamma$ -dibromo-**, action of heat on (BLAISE and COURTOT), A., i, 927.
- reactions of (COURTOT), A., i, 925.
- $\beta\gamma$ -dibromo-, and β -hydroxy-, ethyl ester and its acetyl derivative** (COURTOT), A., i, 554.
- $\alpha\alpha\beta$ -Trimethylbutyrolactone**, $\beta\gamma$ -dibromo-, and γ -hydroxy-, and its ethyl ether (BLAISE and COURTOT), A., i, 927.
- β -hydroxy- (COURTOT), A., i, 555.
- 2:4:5-Trimethyleinnamic acid**, 6-nitro- (GATTERMANN), A., i, 592.
- 3:4:7-Trimethylcoumarin** (FRIES and KLOSTERMANN), A., i, 276.
- Trimethyldehydrobrazilin**, nitro-, β -acetyl derivative of (HERZIG, POLLAK, and MAYRHOFER), A., i, 872.
- 1:1:2-Trimethyl- $\Delta^{2:4}$ -dihydrobenzene**, 3:5-dichloro- (CROSSLEY and HILLS), T., 880; P., 144.
- Trimethylidihydroresorcin**, action of phosphorous pentachloride on (CROSSLEY and HILLS), T., 875; P., 144.
- Trimethylene**. See *cycloPropane*.
- Trimethylene-*J*-iditol** (BERTRAND and LANZENBERG), A., i, 729.
- Trimethyleneiminesulphonic acid** (GABRIEL and COLMAN), A., i, 890.
- Trimethyleneethylene** and its dibromide (BLAISE and COURTOT), A., i, 793.
- Trimethylglutarimide** (BLAISE and COURTOT), A., i, 793.
- Trimethylcyclohexanones**, 2:4:4- and 3:5:5-, oximes of (WALLACH), A., i, 514.
- 2:3:5-Trimethylindole** (GRGIN), A., i, 884.
- 3:3:5-Trimethyl-indolenine** and its salts and -indolinone (GRGIN), A., i, 884.
- Trimethylitamic acid**, methyl ester (NOYES and DOUGHTY), A., i, 4.
- 1:1:3-Trimethyl-4-ketopentamethylene-2:3-dicarboxylic acid**. See 1:1:3-Trimethyl-4-cyclopentanone-2:3-dicarboxylic acid.
- Trimethyl-*Lophine*** and its acetyl derivative (GATTERMANN), A., i, 590.
- Trimethyl- α - and β -methylarabinosides** (PURDIE and ROSE), T., 1207; P., 201.
- 3:3:5-Trimethyl-2-methyleneindoline**, acetyl derivative (KONSCHEGG), A., i, 452.
- 1:2:3-Trimethyl- α -naphthiminazolum iodide and -2:3-dihydrobenziminazole-2-ol and its salts** (FISCHER and RÖMER), A., i, 540.
- Trimethylparaconic acid**, derivatives of (NOYES and DOUGHTY), A., i, 4.
- 1:1:2-Trimethylcyclopentane**. See Dihydroisolaurolene.
- 1:1:3-Trimethylcyclopentane-2:3-dicarboxylic acid** (1:1:3-trimethylpentamethylene-2:3-dicarboxylic acid) and its anhydride and methyl ester (PERKIN and THORPE), T., 791.
- 1:1:3-Trimethyl-4-cyclopentanol-2:3-dicarboxylic acid** (1:1:3-trimethyl-4-hydroxypentamethylene-2:3-dicarboxylic acid) (PERKIN and THORPE), T., 789.

- 1:1:3-Trimethyl-4-cyclopentanone-2:3-di-carboxylic acid** (*1:1:3-trimethyl-4-ketopentamethylene-2:3-dicarboxylic acid*), ethyl ester, and its reactions (PERKIN and THORPE), T., 783.
- 1:1:3-Trimethyl- Δ^4 -cyclopentene-2:3-di-carboxylic acid, 4-chloro-, ethyl ester** (PERKIN and THORPE), T., 784.
- Trimethylphosphine oxide** and its compounds with acids and salts (PICKARD and KENYON), T., 264 ; P., 42.
- Trimethylol-2-picoline** and its tribenzoate and their additive salts (LIPP and ZIRNGIBL), A., i, 381.
- $\beta\beta\epsilon$ -Trimethylpimelic acid**, synthesis of (BLANC), A., i, 399.
- Trimethylisopropenylcyclopentene** (PERKIN and THORPE), T., 800.
- 2:6:8-Trimethyl-3-isopropyl-1:4-dihydro-quinoxaline** and its additive salts (EKELEY), A., i, 459.
- Trimethylisopropylcyclopentane, di-hydroxy-** (PERKIN and THORPE), T., 800.
- 1:2:3-Trimethylpyrazolone** and its additive salts (KNORR), A., i, 893.
- 2:4:6-Trimethylpyridine**, condensation of, with benzaldehyde (KOENIGS and V. BENTHEIM), A., i, 37.
- Trimethyl rhamnose** and its methylation and phenylhydrazone (PURDIE and YOUNG), T., 1202 ; P., 201.
- Trimethylstibine**, preparation of (HIBBERT), A., i, 153.
- Trimethylsuccinic acid**, preparation of (HIGSON and THORPE), T., 1466 ; P., 242.
- Trimethylsuccinic hemialdehyde** oxime, phenylhydrazone, and semicarbazone (BLAISE and COURTOT), A., i, 928.
- Trimethylsulphonium iodide**, preparation of (REYCHLER), A., i, 5.
- action of chlorine on (WERNER), T., 1635 ; P., 258.
- Trimethylthionine** and its chloride (KEHRMANN and DUTTENHÖFER), A., i, 460.
- Trimethyluracil**, nitration of (BEHREND and HUFSCHEIDT), A., i, 311.
- oxidation of (BEHREND and HUFSCHEIDT), A., i, 310.
- 1:3:7-Trimethylxanthine**, salts of, with barium salicylate (AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 715.
- s-Triphenacylomethylamine** and its additive salts and reactions (SCHÄFER and TOLLENS), A., i, 574.
- Triphenetylslphonium** and its hydroxide, chlorides, and platinichloride (SMILES and LE ROSSIGNOL), T., 702 ; P., 24, 87.
- Triphenolsulphonium chloride** (SMILES and LE ROSSIGNOL), T., 705 ; P., 24, 87.
- Triphenylacetic acid**, preparation of (SCHMIDLIN), A., i, 392.
- m-chloro-p-hydroxy-** (BISTRZYCKI and V. SIEMIRADZKI), A., i, 136.
- Triphenylamine**, amino- (HAEUSSERMANN), A., i, 910.
- 1:4:5-Triphenyl-3:5-endoanilo-4:5-di-hydro-1:2:4-triazole** and its additive salts (BUSCH and MEHRTENS), A., i, 117.
- 1:4:5-Triphenyl-3-benzylpyrazoline, 5-p-chloro-** (SCHIMETSCHEK), A., i, 369.
- aaa-Triphenylbutanes, n- and iso-, and their trinitro-derivatives** (GOMBERG and CONE), A., i, 822.
- $\alpha\gamma\delta$ -Triphenyl- β -butanone, chloro-, chlorohydroxy-, and chloronitro-derivatives** (SCHIMETSCHEK), A., i, 368.
- $\alpha\gamma\delta$ -Triphenyl- Δ^{γ} -butylene- β -one, chloro-, hydroxy-, and nitro-derivatives** (SCHIMETSCHEK), A., i, 368.
- Triphenylecarbinol, p-bromo-** (CONE and LONG), A., i, 424.
- Triphenylchloromethane**. See Triphenylmethane, ω -chloro-.
- 1:1:2-Triphenyl-1:2-dihydroisobenzofuran** and 2-hydroxy- (GUYOT and CATEL), A., i, 761.
- 3:6-di-p-bromo-** (STOLLÉ and WEINDEL), A., i, 708.
- Triphenyldimethylglyoxalinium iodide** (FISCHER and RÖMER), A., i, 542.
- aaa-Triphenylethane** (GOMBERG and CONE), A., i, 414, 822.
- Triphenylethylpropionitrile** (KOHLER), A., i, 429.
- $\alpha\delta\delta$ -Triphenylfulgenic acid**, synthesis of (STOBBE and BADENHAUSEN), A., i, 279.
- amino-derivatives, and their salts, and the fulgide of the *m*-amino-compound, *N*-acetyl derivative of (STOBBE and KÜLLENBERG), A., i, 92.
- nitro-derivatives, and their salts and red fulgides (STOBBE and KÜLLENBERG), A., i, 91.
- aaa-Triphenylisohexane** and *trinitro*- (GOMBERG and CONE), A., i, 822.
- Triphenylmethane** (HANTZSCH and CALDWELL), A., i, 617 ; (STRAUS and ECKER), A., i, 859.
- preparation of (SCHMIDLIN), A., i, 392 ; (REYCHLER), A., i, 821.

- Triphenylmethane**, solubility of, in organic liquids, with which it forms crystalline compound (HARTLEY and THOMAS), T., 1013; P., 59.
additive compounds of, with amines (WERNER and SUMMERER), A., i, 437.
- Triphenylmethane**, ω -chloro- (*triphenyl-carbinyl chloride*), halogen derivatives of (CONE and LONG), A., i, 424.
and its halogen derivatives and carbinols and their ethers (GOMBERG and CONE), A., i, 823.
magnesium compound of (SCHMIDLIN), A., i, 392.
 $2:4':4''$ -trichloro- (GOMBERG and CONE), A., i, 823.
 α -hydroxy-, derivatives of (NOELTING and GERLINGER), A., i, 610.
- Triphenylmethane colouring matters** containing two triphenylmethane groups joined by a glutaconic aldehyde group, influence of methyl groups on the shade of (REIZENSTEIN and ROTHSCHILD), A., i, 316.
- Triphenylmethyl** (GOMBERG and CONE), A., i, 414, 821, 822.
ethyl ether, $2:4':4''$ -trichloro- (GOMBERG and CONE), A., i, 823.
- Triphenylmethyl-amine**, -aniline and peroxide, *p*-bromo- (CONE and LONG), A., i, 424.
- Triphenylmethyl-*p*-toluidine**, *p*-chloro- (GOMBERG and CONE), A., i, 823.
- $\alpha\beta\gamma$ -Triphenyl- Δ^{α} -pentenol and its acetate, benzoate, and peroxides (KOHLER), A., i, 753.
- Triphenylphosphine oxide** and its compounds with acids and salts (PICKARD and KENYON), T., 264; P., 42.
- $\alpha\alpha$ -Triphenylpropane and trinitro- (GOMBERG and CONE), A., i, 414, 821.
- Triphenylpropionic acid** and its amide and nitrile (KOHLER), A., i, 429.
- Triphenylpropiophenone** (KOHLER and HERITAGE), A., i, 96.
bromo- (KOHLER), A., i, 754.
- 1:2:5-Triphenyl-1:3:4-triazole**, *di-p*-bromo- and *di-m*-nitro-derivatives (STOLLÉ and WEINDEL), A., i, 708.
- 2:5-*di-p*-nitro-** (STOLLÉ and BAMMACH), A., i, 711.
- Tri-*n*-propylphosphine oxide** and its compounds with acids and salts (PICKARD and KENYON), T., 264; P., 42.
- 2:4:6-Tristyrylpyridine** and its derivatives (KOENIGS and v. BENTHEIM), A., i, 37.
- Trithienylamine** (OPOLSKI), A., i, 34.
- Trithio-3:4-dimethylbenzaldehyde** (GATTERMANN), A., i, 591.
- Trithioformaldehyde** (REYCHLER), A., i, 5.
- Triumfetta rhomboidea** bark. See Fibre, "Nzonogwi."
- s-Trixanthylbenzene-2:4:6-tricarboxylic acid**, 3:6:9:3':6':9':3":6":9"-*nonahydroxy*-, and its dodecabromo- and decaiodo-derivatives and their salts (SILBERRAD and GLOVER), T., 1808; P., 252.
- Tropeines**, preparation and properties of some new (JOWETT and HANN), T., 357; P., 61.
relation between chemical constitution and physiological action in the (JOWETT and PYMAN), P., 317.
- Trypanosomiasis**, treatment of, by benzidine colours (NICOLLE and MESNIL), A., ii, 787.
- Trypsin** and antitrypsin (HEDIN), A., i, 780.
neutralisation of, by charcoal (HEDIN), A., ii, 780.
- Trypsinogen** and enterokinase (HAMILL), A., ii, 181.
- Tryptic action**, time relations of (HEDIN), A., ii, 780.
- Tryptophan** (NEUBERG), A., i, 1000.
constitution of, and its oxidation to indole-3-aldehyde (ELLINGER), A., i, 696.
protein reactions attributed to (BAR-DACHZI), A., i, 778.
- Tube**, absorption, new form of (PERMAN), A., ii, 390.
calcium chloride. See Calcium chloride tube.
capillary. See Capillary tubes.
Crookes'. See Crookes' tube.
filter. See Filter tube.
- Tuberculin**, effects of, absorbed from the digestive canal in healthy and tuberculous animals (CALMETTE and BRETON), A., ii, 378.
- Tuberculosis**, agglutinin test in (WIGHAM), A., ii, 296.
- Tungsten**, preparation of (ARRIVAUT), A., ii, 861.
boiling and distillation of (MOISSAN), A., ii, 232.
- Tungsten alloys** with iron. See Ferrotungstens.
with manganese (ARRIVAUT), A., ii, 861.
- Tungsten hexachloride**, action of nitrogen sulphide on (DAVIS), T., 1577; P., 261.
- Tungsten**, separation of, from tin (DONATH), A., ii, 309; (ANGENOT), A., ii, 496.
- Turanose**, formation and hydrolysis of (TANRET), A., i, 560.

Turpentine oil, examination of (UTZ), A., ii, 584.
 the bromine absorption of commercial (VAUBEL), A., ii, 310.
 and turpentine substitutes, estimation of petroleum, petrol distillates, and benzene in (BÖHME), A., ii, 583.
 American and French, the pinene fraction of (AHLSTRÖM and ASCHAN), A., i, 442.
 Swedish (KONDAKOFF and SCHINDELMEISER), A., i, 686.
Turnbull's blue, reduction of (KOHN), A., i, 562.
Turtle's heart. See Heart.
Tutin, physiological action of (MARSHALL), A., ii, 789.
Tychite and northupite, isomorphism of (DE SCHULTEN), A., ii, 769.
Type metal, volumetric estimation of antimony in (YOCKEY), A., ii, 903.
Typhoid bacilli. See under Bacillus.
Typhus fever, changes in blood-forming organs in (LOVE), A., ii, 187.
Tyrosinase, action of radium rays on (WILCOCK), A., i, 548.
Tyrosine, amount of, in seedlings of *Lupinus albus* (SCHULZE and CASTORO), A., ii, 795.
 synthesis of (LATHAM), A., i, 85.
 liberation of, during tryptic proteolysis (BROWN and MILLAR), T., 145.
 preparation of, from silk (ABDERHALDEN and TERUCHI), A., i, 852.

U.

Ulexine. See Cytisine.
Ultramarines (CHABRIÉ and LEVALLOIS), A., ii, 676:
Ultramicroscope and its application to chemistry (MICHAELIS), A., ii, 431.
Ultramicroscopic studies (BILTZ and GEIBEL), A., ii, 284.
Umbellularic acid and its anhydride and ethyl ester, and **Umbellulonic acid** and its lactone (TUTIN), T., 1110; P., 195.
Umbellulone, constitution of, and its reactions (TUTIN), T., 1104; P., 195.
Undecylthiophan and its sulphone (MABERY and QUAYLE), A., i, 395.
Unsaturated compounds (POSNER), A., i, 955.
 electrolytic oxidation of (LAW), T., 1449.
 reaction between, and organic magnesium compounds (KOHLER and HERITAGE), A., i, 96; (KOHLER), A., i, 427, 753.
Uracil, 5-iodo- (JOHNSON and JOHNS), A., i, 455.

Uranium and radium, relative proportion of, in radioactive minerals (RUTHERFORD and BOLTWOOD), A., ii, 593.
 α -particles of (BRAGG), A., ii, 416.
 coefficient of absorption of β -rays from (CROWTHER), A., ii, 720.
 boiling and distillation of (MOISSAN), A., ii, 232.

Uranium compounds, relation between the radioactivity and composition of (McCoy), A., ii, 142.

Uranous sulphate, equilibrium phenomena with the hydrates of, and the basic sulphates (GIOLITTI and LIBERI), A., ii, 861.

Uranyl salts, alkaline, action of, on the rotatory power of sugars and other optically active hydroxyl compounds (GROSSMANN), A., ii, 61.

compounds of, with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 631.

double salts, radioactivity of (MARCKWALD), A., ii, 143.

sulphate, action of light on a solution of, in ethylene glycol (OECHSNER DE CONINCK), A., i, 2.

Uranium and vanadium, estimation of (FINN), A., ii, 903.

Uranium X, separation of, from uranium (MOORE and SCHLUEDER), A., ii, 721.

Uranium-vanadium metals, treatment of (GIN), A., ii, 862.

Uranous and Uranyl salts. See under Uranium.

Urea in human urine (LIPPICH), A., ii, 564; (MOOR), A., ii, 693.
 estimation of (GLASSMANN), A., ii, 314; (HASKINS), A., ii, 908.
 estimation of, in urine. See under Urine.

See also Carbamide.

Ureides (SIMON), A., i, 733.
 acidic constants of some (WOOD), T., 1831; P., 271.

Ureter pressure (HENDERSON), A., ii, 107.

Urethane, action of, on ethyl glyoxylate (SIMON and CHAVANNE), A., i, 636.

action of, on pyruvic acid and its derivatives (SIMON), A., i, 733.

Urethylcoumarans. See Carbethoxyaminocoumarans.

Uric acid, oxidation of, in presence of ammonia (DENICKE), A., i, 938.
 solubility of, in blood serum (TAYLOR), A., ii, 109.

solubility of, in silicic acid, in sodium metasilicate, and in distilled water (COMANDUCCI), A., i, 405.

Uric acid, and purine substances, excretion of (FAUVEL), A., ii, 564.
 excretion, influence of chocolate and coffee on (FAUVEL), A., ii, 564.
 derivatives, acidic constants of (WOOD), T., 1831; P., 271.
 metabolism. See under Metabolism.
 estimation of, in urine. See under Urine.

Urinary albumose. See Albumose.

Urine, why does, become cloudy on boiling? (MALFATTI), A., ii, 785.
 acidimetry of; influence of nutrition and muscular work on the acidity of; and influence of nutrition on the water of the body (VOZÁRIK), A., ii, 377.
 secretion of (BRODIE and CULLIS), A., ii, 468.
 secretion of lithium in (BERGER), A., ii, 692.
 elimination of chloroform by (NICKLOUX), A., ii, 622.
 means for distinguishing true albumin from mucinoid substances in (GRIMBERT and DUFAU), A., ii, 912.
 amino-acids in normal (EMBDEN and REESE), A., ii, 108; (FORSSNER), A., ii, 243; (ABDERHALDEN and SCHITTEHENLEM), A., ii, 470; (MOHR), A., ii, 693; (WOHLGEMUTH and NEUBERG), A., ii, 874.
 excretion of optically active amino-acids in (REISS), A., ii, 785.
 excretion of amino-acids in diabetic (ABDERHALDEN and SCHITTEHENLEM), A., ii, 693.
 amino-acids in normal and pathological (SAMUELY), A., ii, 470.
 glycine and total monoamino-acids in pathological (HALL), A., ii, 378.
 of children, occurrence of amino-acids in the (RIETSCHEL and LANGSTEIN), A., ii, 785.
 carbamates in (MACLEOD and HASKINS), A., ii, 378.
 the chromogen of the so-called scatole-red in normal human (STAAL), A., i, 124; (MAILLARD), A., ii, 185.
 occurrence of glyoxylic acid in (INADA), A., ii, 109.
 new metabolic product in diabetic (STRZYZOWSKI), A., ii, 472.
 oxyproteic acids in normal human (BONDZIŃSKI, DOMBROWSKI, and PANEK), A., i, 122.
 phosphates in (HENDERSON), A., ii, 185, 469.
 organic phosphorus in (SYMMERS), A., ii, 186.

Urine, the potassium in human, in altered circulatory conditions of the kidney (WOHLWILL), A., ii, 469.
 differentiation between the various sugars in (ESCHBAUM), A., ii, 585.
 urea in human (LIPPICH), A., ii, 564; (MOOR), A., ii, 693.
 of birds, estimation of uric acid in (KÖSSA), A., ii, 313.
 of horse, ox, and pig, purine substances of the (SCHITTEHENLEM and BENDIX), A., ii, 564.

Urine, analytical processes relating to:—
 analysis of (TARUGI), A., ii, 136.
 influence of lead salts on the polarimetric investigation of (GROSSMANN), A., ii, 905.
 relation between scatole and the *p*-dimethylaminobenzaldehyde reaction of (HERTER), A., ii, 108.
 detection of acetoacetic acid in (MAYER), A., ii, 501; (BONDI), A., ii, 588; (LINDEMANN), A., ii, 813.
 detection of acetoacetic acid in diabetic (RIEGLER), A., ii, 710.
 detection of bile pigments in (GRIMBERT), A., ii, 134.
 Fehling's test for dextrose in (MACLEAN), A., ii, 255.
 detection of indican in, by means of alkali persulphates (ROSSI), A., ii, 910.
 detection of inositol in (MEILLÈRE), A., ii, 811.
 inhibition of Nylander's sugar reaction by the presence of mercury and chloroform in (BECHHOLD), A., ii, 129; (WILLEN), A., ii, 810.
 the Pavly-Sahli sugar titration in (WAGNER), A., ii, 400.
 can sugar be detected in, by the fermentation test? (PFLÜGER), A., ii, 255.
 detection of toxic bases in (KUTSCHER and LOHMANN), A., ii, 471, 786, 875.
 sources of error in the estimation of acetone in (BORCHARDT), A., ii, 312.
 estimation of organic acids in, with reference to diabetes (EDIE and WHITLEY), A., ii, 185.
 rapid estimation of albumin in (BÜCHNER), A., ii, 912.
 estimation of dextrose in (BLAISE), A., ii, 710; (WIESLER), A., ii, 810.
 estimation of homogentisic acid in (GARROD and HURSTLEY), A., ii, 130.
 estimation of sugar in (LEVY), A., ii, 499.

- Urine, analytical processes relating to :-**
- estimation of sugar in, by a modification of Trommer's method (SIM-ROCK), A., ii, 810.
 - estimation of diabetic sugar in, by fermentation (GOLDMANN), A., ii, 586.
 - estimation of sulphur in (DESMOU-LIÈRES), A., ii, 799.
 - estimation of sulphates and sulphur in (FOLIN), A., ii, 124.
 - estimation of urea in (DEHN), A., ii, 816.
 - estimation of uric acid in (RONCHÈSE), A., ii, 401; (GUÉRIN), A., ii, 501. See Acetonuria, Alcaptonuria, Cystinuria, Diuresis, Excretion, Haemoglobinuria, and Kidney.
 - Urobilin** (FISCHLER), A., ii, 470, 780.
 - Urologic coefficients**, influence of alimentation on the value of (DESGREZ and AYRIGNAC), A., ii, 377.
 - Urometer**, new (DEHN), A., ii, 816.
 - Urotropine** (*hexamethylene tetramine*), decomposition of (ISCHIDZU and INOUYE), A., i, 402.
 - compound of, with chromium tetroxide (HOFMANN), A., i, 805.
 - tests for the purity of (WÖHLK), A., ii, 133.
 - Urushin** (TSCHIRCH and STEVENS), A., i, 31.
 - Usnaric acid** and its salts (HESSE), A., i, 280.
 - Uvitic acid**, 2-hydroxy-, and its derivatives and the action of phosphorus chlorides on (ANSCHÜTZ and ROBITSEK), A., i, 507.
- V.**
- Vacua**, production of high, by means of liquid air (CLAUDE and LÉVY), A., ii, 347.
- Valencies**, partial, contribution to the theory of (KAUFFMANN and GROMBACH), A., i, 283.
- of atoms of certain compounds and their volumes, at the melting point, relation between the (LE BAS), P., 322.
- Valency**, a development of the atomic theory which correlates chemical and crystalline structure and leads to a demonstration of the nature of (BARLOW and POPE), T., 1675; P., 264.
- a difficulty in the theory of, of W. Barlow and W. J. Pope (CHAPMAN), P., 320.
- Valeric acid**. See α -Methylbutyric acid.
- iso***Valeric acid**, benzyl ester (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 498.
- α -amino-, resolution of, and their formyl and phenylcarbimide derivatives (FISCHER, MATSUBARA, and HILPERT), A., i, 561.
- Valeritriene** (3,5-diisopropyl-2-isobutyl-pyridine) (TSCHITSCHIBABIN), A., i, 451.
- Valerone**. See Diisobutyl ketone.
- iso***Valerylphenylhydrazine** (PONZIO), A., i, 66.
- Valin** and **Valyl**, definition of (FISCHER, MATSUBARA, and HILPERT), A., i, 561.
- Vanadic acid and salts**. See under Vanadium.
- Vanadium**, electrolytic preparation of (GIN), A., ii, 862.
- influence of very strong electromagnetic fields on the spark spectra of (PURVIS), A., ii, 421.
- Vanadium salts**, use of, in the electrolytic oxidation or reduction of organic compounds (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 286.
- Vanadous and Vanadic salts**, electrolytic preparation and properties of (RUTTER), A., ii, 366; (MARINO), A., ii, 617.
- Vanadic acid**, estimation of, iodometrically, in vanadium ores (HETT and GILBERT), A., ii, 708.
- Vanadium** double sulphates and sesquioxide (STÄHLER and WIRTHWEIN), A., ii, 33.
- Vanadium** and uranium, estimation of (FINN), A., ii, 903.
- Vanadium ores**, iodometric estimation of vanadic acid in (HETT and GILBERT), A., ii, 708.
- Vanadium steel** (SMITH), A., ii, 398.
- Vanadium-uranium metals**, treatment of (GIN), A., ii, 862.
- Vanadous salts**. See under Vanadium.
- Vanillin**, distinction of, from coumarin (KASTLE), A., ii, 503.
- electrolytic reduction of (LAW), T., 1515, 1526; P., 237.
- estimation of (HANUŠ), A., ii, 133.
- Vaporisation** of solid substances at the ordinary temperature (ZENGELIS), A., ii, 831.
- Vapour composition**, studies in (CARVETH and MAGNUSSON), A., ii, 727.
- Vapour density**, determinations of, by Nernst's modification of Victor Meyer's method (LÖWENSTEIN), A., ii, 271.

Vapour pressure, researches on (v. JÜPTNER), A., ii, 522.
and chemical composition (BINGHAM), A., ii, 523.
elementary proof of the relation between composition and, of a binary mixture (LEWIS), A., ii, 423.
relation between osmotic pressure and, in a concentrated solution (SPENS), A., ii, 273.
in equilibrium with substances holding varying amounts of moisture (TROUTON and POOL), A., ii, 333.
of a pure liquid at constant temperature (YOUNG), A., ii, 422.
of binary mixtures (MARSHALL), T., 1350; P., 154.
of some solids (WIEDEMANN, STELZNER, and NIEDERSCHULTE), A., ii, 9.
Vapour pressure curves, possible types of (MARSHALL), T., 1350; P., 154.
Vapours, connection between the critical temperatures of gases and, and their absorption coefficients, and the viscosity of the solvent medium (TATE), A., ii, 838.
Vegetable substances, absolute desiccation of (MAQUENNE), A., ii, 129.
tissues, insoluble alkaline compounds in living (BERTHELOT), A., ii, 117.
Velocity of chemical change and reactions. See under Affinity, chemical.
Veratrole, preparation of, and its condensation with phthalyl chloride (PERKIN and WEIZMANN), T., 1649.
Veratrolesulphonic acid, potassium salt, amide, and chloride of (PAUL), A., i, 843.
Veratrum album, alkaloids of the rhizome of, and their estimation (BREDEMANN), A., ii, 506.
Veronal, detection of poisoning by (G. and H. FRERICHS), A., ii, 379.
Vesuvian ash from the Baltic (BRAUNS), A., ii, 556.
which fell in Naples on October 2nd, 1904, composition of (COMANDUCCI and PESCITELLI), A., ii, 177.
which fell in Naples in April, 1906 (JOHNSON), A., ii, 621; (COMANDUCCI and ARENA), A., ii, 864.
Vesuvian ashes and lava, radioactivity of, from the recent eruption (BECKER), A., ii, 515.
Vesuvian lava, fumarole products of (HENRICH), A., ii, 685.
Vesuvian sand, composition of (GIORGIS and GALLO), A., ii, 447.
of April, 1906 (OGLIALORO), A., ii, 621.

Vesuvius, chemical reactions in the eruption of, in April, 1906 (STOKLASA), A., ii, 685.
products of the recent eruption of (LACROIX), A., ii, 555.
amount and origin of the ammonia in the products of the eruption of, in April, 1906 (STOKLASA), A., ii, 864.
galena formed during the eruption of, in April, 1906 (ZAMBONINI), A., ii, 766.
Victorium and its spectra (URBAIN), A., ii, 28; (CROOKES), A., ii, 360.
Vinegar, fermentation, method of distinguishing, from "vinegar essence" (SCHMIDT), A., ii, 401.
β-Vinylpivalic acid. See $\alpha\alpha$ -Dimethyl- $\Delta\gamma$ -pentenoic acid.
Viscosity in relation to conductivity (WALDEN), A., ii, 335.
and conductivity of certain salts in water, methyl alcohol, ethyl alcohol, acetone, and binary mixtures of these solvents (JONES and McMASTER), A., ii, 737.
and fluidity (BINGHAM), A., ii, 218.
relation between ionic velocity or rate of diffusion and (WALDEN), A., ii, 217.
determination of the coefficient of, of gases by a new method (ZEMPLÉN), A., ii, 272.
of liquid mixtures (DUNSTAN), P., 89; (DUNSTAN and WILSON), P., 308.
of binary liquid mixtures (GETMAN), A., ii, 832.
Viscosity-curves of silicates (DOELTER), A., ii, 350; (LOEWINSON-LESSING), A., ii, 459.
Vital processes, influence of temperature on (ABEGG), A., ii, 95; (HERZOG), A., ii, 115.
Vitellin, hydrolysis of (ABDERHALDEN and HUNTER), A., i, 912.
cleavage products of (LEVENE and ALSBERG), A., i, 913.
See also Edestin.
Vitexin from saponarin and its constitution (BARGER), T., 1215; P., 194.
Volatility in various groups of compounds (HENRY), A., i, 549.
Volcanic phenomena, action of carbon monoxide at a red heat on water vapour, and of hydrogen on carbon dioxide in reference to the study of (GAUTIER), A., ii, 538.
action of hydrogen sulphide on certain oxides in reference to the study of (GAUTIER), A., ii, 548.

Volcanic phenomena, action of water vapour on sulphides at a red heat in reference to the study of (GAUTIER), A., ii, 548.

Voltameters. See under Electrochemistry.

Volumes of atoms of certain compounds at their melting points and their valencies, relation between (LE BAS), P., 322.

Volvox, galvanotropism of (TERRY), A., ii, 185.

W.

Wall-papers, estimation of arsenic, electrolytically, in (THORPE), T., 408; P., 73.

Wash-bottle, Maquenne's, modification of (VILLIERS), A., ii, 576.

Water, purification of, by the simultaneous action of permanganates and the electric current (PELLAS and LEGRAND), A., ii, 606.

molecular constitution of (SUTHERLAND), A., ii, 603.

molecular state of; its chemical constitution and the relative value of the two valencies of the oxygen atom (HENRY), A., ii, 17.

action of Becquerel rays on (KOHLRAUSCH) A., ii, 717.

specific inductive capacity of (BEAULARD), A., ii, 3.

ions of pure (WALKER), A., ii, 263.

vapour, dissociation of (v. WARTENBERG), A., ii, 728; (NERNST and v. WARTENBERG), A., ii, 729.

dissociation of, at high temperatures (LÖWENSTEIN), A., ii, 272; (LANGMUIR), A., ii, 848.

formula for the vapour pressure of, at low temperatures (SCHEEL), A., ii, 422.

evaporation of (SMITH), T., 479; P., 40.

anticatalytic action of (BREDIG, FRAENKEL, and LICHTY), A., ii, 426.

significance of, in the formation of colloidal "bubbles" from soaps (KRAFFT), A., ii, 276.

action of alkali and alkaline-earth metals on a molecule of (DE FORC RAND), A., ii, 831.

vapour, rate of action of, on carbon (FARUP), A., ii, 745.

action of carbon monoxide on (GAUTIER), A., ii, 538.

Combined water, new method of estimating (DUPRÉ), A., ii, 626.

NATURAL WATER:—

Water of Death Gulch, composition of (FRANKFORTER), A., ii, 557.

Irrigating waters, method of determining "black alkali" in (SKINNER), A., ii, 251.

copper salts in (SKINNER), A., ii, 302.

Mineral waters of the acid carbonate class, direct proportionality between the freezing point of a, and the composition of the water expressed in terms of the anhydrous salts and normal carbonates (GRAUX), A., ii, 148.

existence of hydrogen carbonates in, and the supposed anomalies in the osmotic pressure values (MAILLARD and GRAUX), A., ii, 218.

formation of hydrogen sulphide in (THOMANN), A., ii, 477.

chalybeate, action of, on metabolic processes (VANDEWEYER and WYBAUW), A., ii, 778.

estimation of free sulphuric acid, volumetrically, in (AHLUM), T., 470; P., 63.

thermal, action of hydrogen sulphide on certain oxides in reference to the study of (GAUTIER), A., ii, 548.

gases of (MOUREU), A., ii, 442; (MOUREU and BIQUARD), A., ii, 635.

radioactivity of the gases evolved from (CURIE and LABORDE), A., ii, 515.

presence of neon in the gases of (MOUREU and BIQUARD), A., ii, 685.

in Aachen, radioactivity of (SAHLBOM and HINRICHSEN), A., ii, 716.

fluorine in (SAHLBOM and HINRICHSEN), A., ii, 716, 798; (CASARES), A., ii, 896.

of Carlsbad, indirect proof of the presence of radium in (KNETT), A., ii, 412.

Doughty, in Colorado, radioactive (HEADDEN), A., ii, 2.

of Fiuggi, near Anticoli, radioactivity of (NASINI and LEVI), A., ii, 324.

of the Pyrenees and of the geysers of the Yellowstone Park, occurrence of fluorine in (CASARES), A., ii, 80.

thermal, of S. Giuliano, radioactivity of (BATELLI, OCCHIALINI, and CHELLA), A., ii, 824.

NATURAL WATER:—

Mineral waters of Slănic, Roumania, radioactivity of (SEVERIN and HURMUZESCU), A., ii, 593.

Potable waters, use of metallic copper for the purification of (KRAEMER), A., ii, 302.

present position of the problem of the chemical sterilisation of (HETSCH), A., ii, 569.

influence of carbon dioxide under high pressure on the bacteria in (HOFFMANN), A., ii, 695.

importance of vegetable organisms for the oxygen supply of (CRONHEIM), A., ii, 191.

Rain water, amount of chlorine in (JORISSEN), A., ii, 486.

amount of combined nitrogen in, in Dehra Dun and Cawnpore (LEATHER), A., ii, 302.

amount of combined nitrogen in, in Pretoria (INGLE), A., ii, 302.

amounts of nitrogen as ammonia and as nitric acid and of chlorine in the, collected at Rothamsted (MILLER), A., ii, 486.

Indian, composition of (LEATHER), A., ii, 487.

Sea water, changes in the composition of, on freezing (RINGER), A., ii, 556.

electrical conductivity of (RUPPIN), A., ii, 492.

toxicity of, for fresh water animals (OSTWALD), A., ii, 112.

of the Atlantic Ocean and Mediterranean (SCHLÖSING), A., ii, 176.

estimation of dissolved oxygen in (JORISSEN and RINGER), A., ii, 490.

Spring water, radioactivity of (DIENERT and BOUQUET), A., ii, 211; (DIENERT), A., ii, 324.

Water analysis:—

apparatus for sampling (SPITTA and IMHOFF), A., ii, 583.

detection of typhoid bacilli in, by precipitation with ferric oxychloride (NIETER), A., ii, 383.

detection and estimation of lead in (KÜHN), A., ii, 493.

estimation of ammonia in, by Nessler's reagent (BUISSON), A., ii, 704.

estimation of carbon dioxide in (BRUHNS), A., ii, 706.

Volhard method for the estimation of chlorine in (SHUTT and CHARLTON), A., ii, 894.

estimation of small quantities of copper in (PHELPS), A., ii, 396.

Water analysis:—

estimation of the hardness of (MAGNANINI), A., ii, 632.

estimation of combined nitric acid in (DRAWE), A., ii, 490.

estimation of organic matters in (URZ), A., ii, 310.

modification of Winkler's process for the estimation of dissolved oxygen in (NOLL), A., ii, 48.

estimation of combined sulphuric acid in (RASCHIG), A., ii, 306; (BRUHNS), A., ii, 800.

estimation of, in butter and other fats (ASCHMAN and AREND), A., ii, 814.

See also Dew, Ice, and Steam.

Water gas, carburetted, for use in the Bunsen burner (CHIKASHIGE), A., ii, 221.

Water pump. See Pump, water.

Wax, bee's, assay of (BOHRISCH and RICHTER), A., ii, 589.

heat of combustion of (SOKOLOFF), A., ii, 206.

from Annam (BELLIER), A., i, 924.

Indian Ghedda (BUCHNER), A., i, 478.

of the bark of *Jatropha Curcas* (SACK), A., ii, 386.

Weighing bottle for liquids (BUSCHMANN), A., ii, 832.

Weight, supposed alteration in the total, of substances taking part in a chemical reaction (LANDOLT), A., ii, 528.

Weights, molecular, and rotatory power in solution, supposed relationship between (PATTERSON), A., ii, 61; (WALDEN), A., ii, 209.

improved apparatus for determining (BLACKMAN), P., 175.

improved Beckmann apparatus for determining (SANDERS), P., 165.

the van't Hoff-Raoult formula in determinations of (BANCROFT), A., ii, 523.

applicability of Raoult's laws to determinations of, in mixed solvents and in simple solvents the vapours of which dissociate (LEWIS), A., ii, 524.

of alcohols and phenols, determination of, by the use of benzoic anhydride (GASCARD), A., i, 722.

and diffusion of solutions (YÉGOU NOW), A., ii, 338.

of the solvent in binary mixtures (DRUCKER), A., ii, 74.

of inorganic substances (BECKMANN), A., ii, 845.

- Wheat**, proteids of (OSBORNE and HARRIS; OSBORNE and CLAPP), A., ii, 887.
 influence of light of various kinds on the migration of the proteids in (DUMONT), A., ii, 117.
 of crops of 1903 and 1904, comparative values of different grades of (HARCOURT), A., ii, 248.
 influence of manganese and iron sulphates and of potassium and sodium silicates on (VOELCKER), A., ii, 888.
- Wheat flour**, detection of rice in (GASTINE), A., ii, 587.
- Wheat starch**. See under Starch.
- Wine**, influence of oxidation of ethyl alcohol on the maturing of (TRILLAT), A., i, 476.
 occurrence of arsenic in (GIBBS and JAMES), A., ii, 197.
 organic combination of the phosphorus in (FUNARO and RASTELLI), A., ii, 886.
 fruit, yeasts of (OSTERWALDER), A., ii, 298.
 Tokay, composition of the dried grapes used in the preparation of (KRÁMSKY), A., ii, 119.
 analysis of (CARI-MANTRAND), A., ii, 253.
 detection of sophistication in (HALPHEN), A., ii, 904.
 detection of formaldehyde in (SCHUCH), A., ii, 500.
 detection of mineral acids in (BILLON), A., ii, 400.
 detection of salicylic acid in (GORNI), A., ii, 313.
 estimation of the volatile acidity of (ROOS and MESTREZAT), A., ii, 256; (HUBERT), A., ii, 635; (SAUNIER), A., ii, 812.
 estimation of tannin in (KRÁMSKY), A., ii, 134.
 estimation of the free and combined tartaric acid in (HUBERT), A., ii, 204.
- Witch hazel**, detection of formaldehyde in (PUCKNER), A., ii, 59.
- Woad**, fermentation of (WENDELSTADT and BINZ), A., i, 432.
- Wollastonite** and pseudo-wollastonite (ALLEN, WHITE, and WRIGHT), A., ii, 683.
- Wool**, the "chlorination" of (VIGNON and MOLLARD), A., i, 719.
 process of dyeing (GELMO and SUIDA), A., i, 445.
 compounds of, with colourless amines and acids (VORLÄNDER and PEROLD), A., i, 736.
- Woollen fabrics**, estimation of arsenic, electrolytically, in (THORPE), T., 408; P., 73.
- Wulfenite**, preparation of crystalline (CESÁRO), A., ii, 28.
- X.**
- X-rays**. See Röntgen rays under Photochemistry.
- Xanthamide**, compounds of, with salts of univalent copper (ROSENHEIM and STADLER), A., i, 407.
- Xanthates** and thiobiazolones, chemistry of the (ORMEROD), P., 206.
 action of, on derivatives of chloroacetic acid (FRERICHS and RENTSCHLER), A., i, 408.
- Xanthic acid**, platinous salt (RAMBERG), A., i, 791.
- Xanthine**, formation of, from caffeine (FISCHER and ACH), A., i, 219.
 and its methyl derivatives, affinity constants of (WOOD), T., 1839; P., 271.
- Xanthine bases** (SCHMIDT and SCHWABE), A., i, 449.
- Xanthine ptomaines**, action of, on copper (SLOMNESCO), A., i, 449.
- α-Xanthoisobutyric acid** (BIJLMANN), A., i, 626.
- Xanthone series**, observations in the (DIELS and ROSENmund), A., i, 673.
- Xanthophanic acid** methyl and ethyl ethers, and their reactions (LIEBERMANN), A., i, 556.
- Xanthoxalani** and the action of alkalis on (RUHEMANN), T., 1847; P., 284.
mono- and *di-thio-* (RUHEMANN), P., 324.
- Xanthoxal-anil**, *o*- and *p*-toluidils, and *α*-naphthylanil (RUHEMANN), T., 1244; P., 198.
- Xanthoxalo-γ-cumidil**, *p*-ethoxyanil, *β*-naphthylanil, and *m*-xylidil (RUHEMANN), T., 1849; P., 284.
- Xanthydrol**, reactions of (FOSSE), A., i, 975.
- Xanthyl**, valency of the oxygen atom in, and its compounds with metallic haloids (FOSSE and LESAGE), A., i, 687.
 bromide and chloride (FOSSE), A., i, 975.
- Xanthyl-acetanilide**, *aceto-o*-, *m*-, and *p*-toluidides, and *aceto-α*- and *β*-naphthalides (FOSSE and BAUILLON), A., i, 976.
- Xanthyl-acetic and *iso*valeric acids** (FOSSE), A., i, 691.

- (*o*-Xylene, *Me* : *Me* = 1:2 ; *m*-xylene, *Me* : *Me* = 1:3 ; *p*-xylene, *Me* : *Me* = 1:4.)
- Xanthyl-acetoacetic**, -benzoylacetic, -cyanoacetic, and -ethylacetooacetic acids, ethyl esters (FOSSE and ROBYN), A., i, 756.
- Xanthyl-acetonitrile** and -cyanoacetic acid (FOSSE), A., i, 975.
- Xanthyl-acetophenone** and -propanone (FOSSE and ROBYN), A., i, 976.
- Xanthyl-acetyl- and -benzoyl-acetones** (FOSSE and ROBYN), A., i, 756.
- Xanthylbenzene-2-carboxylactone-4:5-dicarboxylic acid**, 3:6:9-trihydroxy, and its salts and tetrabromo- and tetraiodo-derivatives (SILBERRAD and ROY), T., 1796 ; P., 252.
- Xanthylbenzene-2:4:5-tricarboxylic acid**, 3:6:9-trihydroxy, and its tetrabromo- and tetraiodo-derivatives, and their salts (SILBERRAD and ROY), T., 1797.
- Xanthylmalonic acid** (FOSSE), A., i, 975.
- Xanthyl radicles**, introduction of, into electro-negative molecules (FOSSE and ROBYN), A., i, 756.
- Xenotime**, composition of (BRÖGGER), A., ii, 37.
- variations of the absorption bands of a crystal of, in a magnetic field (BECQUEREL), A., ii, 317.
- correlation between the variations of the absorption bands of a crystal of, in a magnetic field and the magnetic rotatory polarisation (BECQUEREL), A., ii, 421.
- Xeronic acid** (KÜSTER and HAAS), A., i, 694.
- Xylan**, diastatic hydrolysis of (SEILLIÈRE), A., ii, 101.
- o-Xylene derivatives** (STALLARD), T., 808 ; P., 104.
- o-Xylene**, 3-bromo-, and its sulphonation (STALLARD), T., 808 ; P., 104.
- 3:5-dihydroxy- and its di- and tribromo-derivatives (SIMON), A., i, 961.
- m-Xylene**, triozonide of (HARRIES and WEISS), A., i, 228.
- m-Xylene**, 6-bromo- and 6-chloro-2:4:5-trinitro- and 6-iodo-5-nitro- (BLANKSMA), A., i, 11.
- ω -tetrabromo- (THIELE, GÜNTHER, and LEOPOLD), A., i, 750.
- s*-nitro-, nitration of (BLANKSMA), A., i, 11.
- 4-nitro-6-amino-, oxidation of (ERRERA and MALTESE), A., i, 84.
- p-Xylene**, *o*-nitronitroso- (MEISENHEIMER and PATZIG), A., i, 643.
- Xylenes**, *m*- and *p*-, *trinitro*-derivatives, crystallography of (JAEGER), A., i, 642.
- o*-, *m*-, and *p*-, six isomeric *tribromo*- (JAEGER and BLANKSMA), A., i, 9.
- bromohydroxy-derivatives, and their acetates and compounds with bases (AUWERS, KIPKE, SCHRENK, and SCHRÖTER), A., i, 262.
- Xyleneazoeugenols**, *as-m*- and *p*-, and their acetyl derivatives (ODDO and PUXEDDU), A., i, 992.
- p-Xylene-2-nitrile** (SCHMID and DECKER), A., i, 306.
- Xylenols**, 1:2:4- and 1:3:4-, bromo-derivatives and their compounds with bases (AUWERS, KIPKE, SCHRENK, and SCHRÖTER), A., i, 261.
- m*-4-Xylylidine and its bromo-derivatives and their perbromides and acetyl derivatives (FRIES), A., i, 646.
- hydrogen phosphite (LEMOULT), A., i, 493.
- Xylydines**, isomeric, *di*- and *tri*-bromo-derivatives (JAEGER and BLANKSMA), A., i, 10.
- Xylitone**, synthesis of an isomeride of (KNOEVENAGEL and SCHWARTZ), A., i, 963.
- Pinner's, and its derivatives (KNOEVENAGEL and BEER), A., i, 965.
- iso***Xylitones**, α - and β -, and their semicarbazones (KNOEVENAGEL and BLACK), A., i, 964.
- m-Xyloylacrylic acid** (KÓZNIEWSKI and MARCHLEWSKI), A., i, 759.
- Xylyl orthophosphates**. See Methyltolyl orthophosphates.
- 5-Xylylacridines**, *m*- and *p*-, and their picrates (SCHMID and DECKER), A., i, 306.
- Xylyl butyl ketones**, *m*- and *p*-, and their oximes and semicarbazones (LAYRAUD), A., i, 433.
- m-Xylylcarbamide**, action of nitrous acid on (HAAGER and DOHT), A., i, 577.
- m-Xylyl-4-carbimide** (HAAGER and DOHT), A., i, 577.
- Xylyldiazobisacetoximes**, *m*- and *p*- (BRESLER, FRIEDEMANN, and MAI), A., i, 321.
- Xylylenediamine**, hydroxy-derivatives, *N*-acyl derivatives of (EINHORN, BISCHKOPFF, SZELINSKI, SCHUPP, LADISCH, and MAUERMAYER), A., i, 247.
- m-Xylylene-4:6-diamine**, monoacyl derivatives, action of nitrous acid on (MORGAN, MICKLETHWAIT, and COUZENS), T., 1295, P., 240.

(*o-Xylene, Me : Me = 1:2 ; m-xylene, Me : Me = 1:3 ; p-xylene, M₆ : Me = 1:4.*)

- Xylylenediaminecarboxylic acid**, *o*-hydroxy-, *N*-dichloroacetyl derivative of (EINHORN and MAUERMAYER), A., i, 251.
- m-Xylylene-4:5-dimethyldiamine** and its derivatives (FISCHER and RÖMER), A., i, 540.
- m-Xylylene-4:6-dimethyldiamine**, preparation of, and the action of diazo-compounds on, and its dinitrosoamine (MORGAN and CLAYTON), T., 1055 ; P., 174.
- 3:5-Xylylmethylnitroamine**, 4-bromo-2:6-dinitro- and 6-bromo-2:4-dinitro- (BLANKSMA), A., i, 11.
- α-Xylylpropionic acids**, 2:4-, 2:5- and 3:4-, *α*-amino-, and their nitriles, hydrochlorides of (JAWELOFF), A., i, 427.
- m-Xylyldithiobiuret** and **m-Xylylthiouret** hydriodide (FROMM and SCHNEIDER), A., i, 657.
- m-Xylyl-p-toluidine**, *o*-amino-, quinazolines from, and its *N*-acetyl derivative (v. WALTHER and BAMBERG), A., i, 385.

Y.

- Yeast**, chemical dynamics of alcoholic fermentation by (SLATOR), T., 128. influence of temperature on the rate of development of (HERZOG), A., ii, 115. separation of the life and ferment action of (BOKORNY), A., ii, 880. influence of formaldehyde on the energy of increase, the fermentative energy, and the duration of generation of different varieties of (HIRSCH), A., ii, 42. relations of oxygen and of movement of the nutrient solution to the increase and fermentative activity of (NATHAN and FUCHS), A., ii, 697. toxic action of various substances on (BOKORNY), A., ii, 480. poisonous action of formic acid on (HENNEBERG), A., ii, 479. adaptation of, to sulphurous acid (GIMEL), A., ii, 477. probable existence of emulsin in (HENRY and AULD), A., ii, 114. preparation and composition of nucleic acids from (Boos), A., i, 775. mycoderma, new, as a cause of saké disease (TAKAHASHI), A., ii, 880.
- Yeasts**, influence of mycoderma on the reproduction and fermentation of (Kossowicz), A., ii, 699.

Yeasts, autodigestion of some (SCHENK), A., ii, 190.

of fruit wine (OSTERWALDER), A., ii, 298.

Yeast catalase. See under Catalase.

Yeast cells, action of sodium salicylate on (DRESER), A., ii, 43. dead, influence of high sugar concentration on the work of endotryptase in (GROMOFF), A., ii, 569.

Yeast juice, alcoholic ferment of (HARDEN and YOUNG), A., i, 470.

Ytterbium, ultra-violet spectrum of (CROOKES), A., ii, 713. chloride (MATIGNON), A., ii, 674.

Yttrium chloride (MATIGNON), A., ii, 673.

Z.

Zein, decomposition of (DENNSTEDT and HASSLER), A., i, 916.

Zeolite, new, from Elba (D'ACHIARDI), A., ii, 773.

Zeolite group, new mineral of the, from Hainburg, Lower Austria (PAULY), A., ii, 773.]

Zeolites from Brazil (HUSSAK), A., ii, 555.

loss on ignition of, as a mineralogical character (GOLDSCHMIDT and HERMANN), A., ii, 237.

Zinc, purification of, from arsenic (THORNE and JEFFERS), A., ii, 394. and its compounds, contamination of, with lead (COCKING), A., ii, 754.

Zinc alloys with aluminium, estimation of zinc in (SELIGMAN and WILLOTT), A., ii, 197.

with antimony (SCHEMTSCHUSCHNY), A., ii, 448, 549.

with arsenic (FRIEDRICH and LEROUX), A., ii, 671.

with cadmium and lead (NOVAK), A., ii, 26.

with copper (GUILLET), A., ii, 357.

with gold (VOGEL), A., ii, 287.

with magnesium (GRUBE), A., ii, 355.

with silver (PETRENKO), A., ii, 284.

with sodium (MATHEWSON), A., ii, 165.

Zinc salts, hydrolysis of, in presence of iodides and iodates (MOODY), A., ii, 706.

Zinc meta-arsenite, preparation of (AVERY), A., i, 788.

perborate, preparation of (DEUTSCHE GOLD- & SILBER-SCHEIDE-ANSTALT VORM. ROESSLER), A., ii, 448.

Zinc carbonate, precipitated basic (KOHN), A., ii, 754.
 iodide, compounds of, with mercuric iodide, isomorphism of (DUBOIN), A., ii, 544.
 nitride (WHITE and KIRSCHBRAUN), A., ii, 853.
 oxide, behaviour of, at high temperatures (DOELTZ and GRAUMANN), A., ii, 671.
 peroxide, preparation of (MERCK), A., ii, 853.
 commercial (v. FOREGGER and PHILIPP), A., ii, 352.
 sulphate, mixed crystals of, with manganese sulphate between 0° and 39° (SAHMEN), A., ii, 169.
 sulphide, phosphorescence of (JORISSEN and RINGER), A., ii, 448.
 sulphoxylate (FROMM and DE SEIXAS PALMA), A., i, 819.
Zinc compounds with thiocarbamide (ROSENHEIM and MEYER), A., i, 408.

Zinc thiocyanate, compounds of, with ethylenediamine (GROSSMANN and SCHÜCK), A., i, 629, 630.
Zinc, microchemical test for (BRADLEY), A., ii, 805.
 titration of, with potassium ferrocyanide (MURMANN), A., ii, 396.
 detection of, by the use of potassium periodate (BENEDICT), A., ii, 128.
 estimation of, in zinc aluminium alloys (SELIGMAN and WILLOTT), A., ii, 197.
 separation of, from iron by means of ammonia (FUNK), A., ii, 54.
Zirconic and **Metazirconic acids**, dehydration and absorptive power of (VAN BEMMELEN), A., ii, 430.
Zirconium silicate. See Malacone.
 silicide (HÖNIGSCHMID), A., ii, 678.
Zoisite from Lower California (FARRINGTON), A., ii, 775.
Zymase, co-enzyme of (BUCHNER and ANTONI), A., i, 56.